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Of the Cactus And Succulent Society Of America

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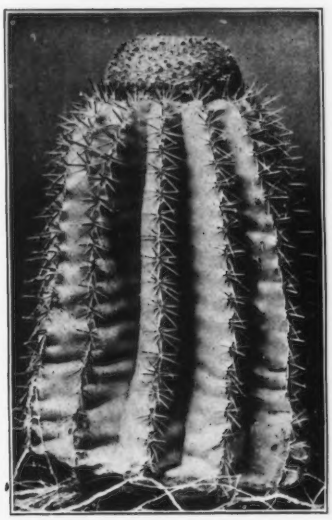

Cactus intortus, Miller

See Dr. Britton's article, page 229

Journal of the CACTUS & SUCCULENT SOCIETY of America

A monthly magazine devoted exclusively to Cacti and Succulents for the dissemination of knowledge and the recording of hitherto unpublished data in order that the culture and study of these particular plants may attain the popularity which is justly theirs. "The Cactaceae," by N. L. Britton and J. N. Rose, has been adopted by this Journal for purposes of identification.

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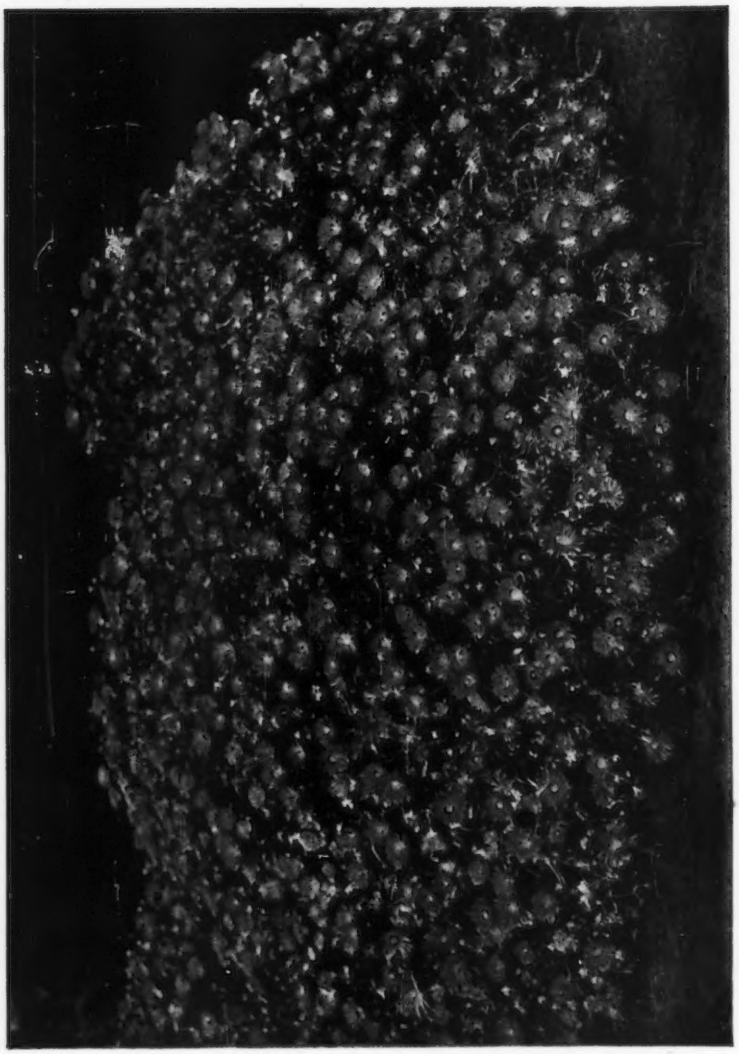
THE PRESENT ISSUE *marks the completion of the first year of the* JOURNAL'S *existence. Thanks to the generosity of some of our friends we are able to celebrate the event with the publication of our first plate in full color on the next page.*

The subject is not unworthy of this honor. M. speciosum *is, as to color, without doubt the most spectacular species of its brilliant tribe. Our plate is from a natural color photograph, but the peculiarly intense scarlet of these flowers is probably incapable of adequate reproductions on paper by means of man-made pigments. It is hardly an exaggeration to compare that vibrant glow of color to a living flame; but no superlatives can convey a sense of the impact on the visual nerves produced by so gloriously intense a hue.*

It seems that we in California are fortunate in possessing a form of this species much superior in color to the plant as commonly found in its native habitat, where it is, on the authority of Prof. Compton, far less brilliant. Otherwise it would seem incredible that this species, known and grown in England at the end of the Eighteenth Century, should ever have become lost to cultivation. Certainly, no one could see the plant in flower, as grown here, without wanting to possess it and pass it on.

Its introduction to California gardens is, like that of so many oher good things, due to our member, Mr. E. O. Orpet of Santa Barbara.



Natural color photo by Franklin Price Knott, Santa Barbara

Mesembrianthemum speciosum Haw.

MESEMBRIANTHEMUM SPECIOSUM Haw.

By JAMES WEST

M. *speciosum*, a native of the Cape, is among the species which have, to date, escaped revision, and remain in the genus *Mesembrianthemum* in its narrower modern sense. In Haworth's classification it comes into the section *Asperiuscula*. It is a vigorous sub-shrub about 2 ft. high, with erect or ascending slender branching stems bearing opposite leaves hardly connate, terete or obscurely flattened above. Young stems are, as all the green parts, densely covered with glistening papillae; later they turn light brown, the papillae persisting as a white-scabrous incrustation; in age they become quite smooth, dark brown and woody. The leaves are up to 1 in. long, 2 lines think, bend rather abruptly upward from their point of origin to become parallel with the stem, each leaf-pair forming a letter U; their color is a bright parrot-green*, the tips lighter and somewhat translucent, or in exposure becoming purplish. The flowers are terminal, borne on unusually long (5 to 7 in.) pedicels; the calyx is nearly obconical, with 5 lobes unequal in size, two being much larger than the others margined with a wide papery membrance, the back of each sepal being produced into a bluntly conical spur; before opening they form a very characteristic bud, rather resembling a tightly closed fist, the "knuckles" of which, formed by the spurs of the sepals, are tinged a deep carmine in effective contrast with the green of the lower part and the light sienna of the straight wiry stems which hold them aloft.

The flowers are well over 2 in. in diameter with petals in several series, about 1 in. long, rather broad linear-oblanceolate, acute or sometimes emarginate, followed by a ring of staminodes shorter than the cluster of stamens which they surround. The latter are numerous, diffuse, the central ones bending over to conceal the five short stigmas. In color, the petals shade from garnet-brown at the extreme tip through brazil-red to scarlet-red and scarlet, suddenly paling to a sharply defined zone of pale yellow green at the base. The next circle is accentuated by the deep black of the staminodes surrounding the center formed by the pale viridine-yellow anthers.

The peculiar arrangement of harmonizing and contrasting hues just outlined is largely responsible for the striking effect of the flowers; the various rings of color at the center are distinctly visible in the open flower, the green and black zones enhancing the effect of the pure glowing reds of the petal-blades. To this must be added the golden metallic shimmer which overlies all the red parts of the flower, particularly on the back of the petals, which is otherwise more subdued in color.

As if color were not enough, the plant is also distinguished by a habit as elegant as it is luxuriant: flowers held well above the plant, and borne in enormous numbers, even when fully open, showing a beautiful curve in the very full petals which, by a slight irregularity of growth, reveal the golden overtones of their shimmering surface.

The plant seems fully as hardy and robust as any of its shrubby congeners. In cultivation its only slight drawback is the fact that it does not root quite as readily from cuttings as most species and that it takes somewhat longer to attain flowering age.

We conclude with the advice: Get a plant of *M. speciosum* and see for yourself!

---

* Color-nomenclature here and in the following after Ridgway.

EDITOR'S NOTE: *James West has been one of the most loyal friends of the Journal, having contributed to every issue in Vol. I. His interesting articles have been enjoyed by us all and we take this means to express in a humble way our appreciation for his tireless effort. The success of the Journal is due entirely to such co-operation and we look forward to each of his contributions in Vol. II.—S. E. H.*

THE NATIVE CACTACEAE OF PORTO RICO AND THE VIRGIN ISLANDS

By N. L. BRITTON

For the first time we have the privilege of printing a contribution from the hand of our Honorary President. Dr. Britton is, of course, known to all of us as the distinguished co-author of The Cactaceae, *the Director, until recently, of the New York Botanical Garden, and one of the most eminent botanists in this country.*

We value very highly his co-operation in helping to make the Journal *a publication of lasting value to Science.*

The following account of the native cacti of the possessions of the United States in the West Indies has been written as supplementary to the technical descriptions of these plants published in Scientific Survey of Porto Rico and the Virgin Islands, 5:607-619, (New York Academy of Sciences 1924). Annual subsequent visits to these islands, have yielded additional information and modified some conclusions. By using the records of rainfall made by the Weather Service at many stations over long period, approximate information relative to the adaptation of the species to average annual precipitation has been obtained, and incorporated. I am indebted to Mr. Oliver E. Fassig, Meteorologist of the United States Weather Bureau at San Juan. The relative porosity of the soil, has, doubtless a modifying reaction on this adaptation, but observations are insufficient to enable me to discuss this relationship with accuracy. The rainfall associated with xerophytic conditions in the West Indies, is, of course, higher than in the temperate zones, evaporation being very much more rapid.

1. OPUNTIA REPENS Bello.

This very pernicious species is a true xerophyte inhabiting areas of low elevation along and near the southern coast of Porto Rico from the vicinity of Aguirre westward to Cape Cabo Rojo, and we have recently observed it isolated on the headland of Cape San Juan at the northeastern corner of Porto Rico, a locality distant from Aguirre about forty miles. It also grows on the Porto Rican island Mona, in the Mona Passage between Porto Rico and Santo Domingo; Cayo Muertos, off the southern coast near Ponce; Vieques (Crab Island), and Culebra (Snake Island), east of Porto Rico but west of the Virgin Passage, and is abundant on Virgin Islands. It can not withstand an annual rainfall greater than about forty inches, as indicated by its natural distribution, and it is most abundant and luxuriant where the amount is between twenty inches, as near Guayanilla to thirty-five inches on Mona. It is a low, much-branched cactus, seldom over a foot in height, but often forming dense matted masses up to ten or twelve feet in diameter, its small oblong to linear joints very readily detached and distributed by adhesion to animals and by the wind. We have seen pigs literally covered by these adhering 'Olaga' joints, as the plant is known in Porto Rico; the Virgin Island name is the expressive appellation 'Suckers.' The species is endemic within the biological province of Porto Rico and the Virgin Islands, with its nearest relatives in *Opuntia taylori* of Santo Domingo, *O. curassavica* of Curacao, and the following apparently extremely local species of Porto Rico.

2. OPUNTIA BORINQUENSIS Britton & Rose.

We know this only from the Morillos de Cabo Rojo, at the southwestern cape of Porto Rico, near an old Spanish fortress in a picturesque location. It is a prostrate plant, forming colonies five or six feet in diameter, with rather broadly oblong or obovate, readily detached joints, shorter and wider than those of *Opuntia repens* and with longer spines; the locality is a limestone swale; its flowers, as reported by Mr. F. M. Pennock, who visited the type locality in March 1930, are small and yellow; its fruit is smaller than that of *O. repens*. The rainfall here is probably about twenty inches.

3. OPUNTIA TRIACANTHA (Willd.) Sweet.

A white-spined species, with spines about three at each areole, the oblong to oval, turgid joints up to three inches long, the flowers about two inches broad, the spineless fruit about an inch long. We found this on Punta Melones, southwestern Porto Rico, on the Mona Passage, where the rainfall is perhaps about thirty inches, and also on Desecheo Island, in the Mona Passage; also on Buck Island, St. Thomas, Virgin

Islands. The major distribution of this species is in the lesser Antilles, from St. Martin to Guadeloupe.

4. OPUNTIA ANTILLANA Britton & Rose.

A low, xerophytic species, growing in Porto Rico at low elevations in the dry southwestern districts, from Salinas westward; also on the Virgin Islands St. Thomas, St. Croix and Tortola; in Santo Domingo, and on St. Kitts in the Lesser Antilles. Within its Porto Rico area of distribution its rain-supply does not exceed about thirty-five inches annually. It does not become much over 2 feet in height, has rather thin obovate joints up to eight inches long, bearing usually from 3 to 6 unequel, slender, yellow spines about two inches long or shorter; its flowers are from two to nearly three inches broad, and its obovoid fruit about one and one-half inches long. The type locality of this species is on the island of St. Kitts.

Its terminal joints are rather readily detached. In the Virgin Islands it is known as 'Bull Suckers'; in Porto Rico we have found no special name for it other than 'Tuna,' a term applied to all the large-jointed Opuntias.

5. OPUNTIA DILLENII (Ker-Gawl) Haw.

Know in Porto Rico as 'Tuna brava' and on the Virgin Islands as 'Prickly Pear,' this is the most widely distributed cactus of tropical America, growing on coastal sands and rocks of all the West Indies, reaching north into Florida and to Bermuda, west to the eastern coasts of Mexico and south to those of northern South America. It sometimes forms very dense thickets, penetrable only by cutting and as a rule is restricted to saline influence. It has large joints, not readily detached, usually formidable, yellow spines, and large yellow or orange flowers; the edible fruit is red or purple, pyriform, two to three inches long, known in Porto Rico as 'Higo del mar.'

This species can hardly be mainly controlled in distribution by rainfall, because it grows luxuriantly both on desert coasts and on those of moist regions, although most plentiful in dry districts. It is, presumably a halophyte, although sometimes existing beyond the influence of salinity, a distribution which we have observed in several other species of West Indian plants of other families than Cactaceae. At least part of its inland distribution in Porto Rico is, however, due to its planting by peons about their cabins for use in poultices; it becomes permanently established, and propagates freely by separated joints. It is locally plentiful in subsaline flats.

6. OPUNTIA RUBESCENS Salm-Dyck.

A tall, upright tree-like species, branched above, and reaching at least twenty feet in height, its continuous, unjointed trunk terete below and six to eight inches in diameter. It grows mostly and is locally abundant in the arid southwestern parts of Porto Rico, at low elevations, where the rainfall does not exceed thirty inches; at the foot of the headland at Cape San Juan, where we first observed it in 1930; on the Porto Rican islands Mona, Cayo Icacos, Vieques and Culebra, on nearly all the Virgin Islands, and is also found in the Lesser Antilles from St. Martin to Guadeloupe. A Porto Rican name for it is 'Tuna de petate.' The largest plants known to me occur about Tallaboa, near Guayanilla, Porto Rico. The Guayanilla rainfall is the least of any measured in Porto Rico, averaging a trifle less than twenty inches. Its joints are thin, oblong, mostly from one to two feet long, dark green or reddish green, the numerous areoles bearing from one to six acicular nearly white spines, or spineless; the flowers are yellow, orange or red, small, about three-fourths of an inch broad, the flattened ovaries often proliferous, forming characteristic chains, which fall apart, strike root, and grow into new plants; this curious habit is most apparent in the spineless race of the species; the obovate petals are spreading, about twice as long as the stamens; the mature fruit is two or three inches in diameter, spiny or unarmed.

The spiny and spineless races of this species have been regarded by authors as distinct species; our field observations do not support this conclusion; spineless plants are relatively rare.

7. OPUNTIA MONILIFORMS (L.) Haw.

This species is closely related to *O. rubsecens.* It is known from Porto Rico only as occurring on the small uninhabited desert island Desecheo, a bird preserve situated in the Mona Passage between Porto Rico and Santo Domingo, several miles west of Aguada; I observed and collected it there in 1914.

The rainfall of Desecheo is unknown, but it may be assumed, with confidence, as not exceeding about twenty inches. It is a characteristic species of the xerophytic parts of Hispaniola, growing both in Haiti and Santo Domingo. Like *O. rubescens* it has an unjointed erect trunk, large, thin and flat jointed branches, small, yellow or orange flowers, and often proliferating ovaries forming chains, whence the specific name *moniliformis;* it differs from *rubescens,* however, in having a more widely spreading crown of branches, longer spines,

which are yellowish or gray, the branches distinctly areolate-tuberculate, and nearly terete ovaries.

O. moniliformis and *O. rubescens*, together with the other species of the series *Spinosissimae* (Cactaceae *1:* 202) form the genus CONSOLEA of Lemaire (Rev. Hort. *1862:* 174), with type species *C. spinosissima*, differing from Opuntia by their unjointed erect trunks and small flowers with fugacious corollas. They form a natural readily distinguishable group, all natives of arid, mostly coastal parts of the West Indian region, with a recently discovered species on the Keys of Florida, also essentially West Indian. While writing the text of these species for "The Cactaceae" some twelve years ago, Dr. Rose and I repeatedly discussed this genus *Consolea*, and finally concluded to regard its species as a Series of *Opuntia*, a result which now after additional knowledge of several of the published species, and Dr. Small's discovery of the plant of the Florida Keys, I would propose to amend by taking up the genus *Consolea*, with the following species:

1. CONSOLEA NASHII Britton

Opuntia Nashii Britton, Bull. N. Y. Bot. Gard. *3:* 446. 1905. Bahamas.

2. CONSOLEA MACRACANTHA (Grisebach)

Opuntia macracantha Grisebach, Cat. Pl. Cub. 116. 1866. Eastern Cuba.

3. CONSOLEA SPINOSISSIMA (Miller) Lemaire, Rev. Hort. *1862:* 174. 1862.

Opuntia spinosissima Miller, Gard. Dict. ed. 8, No. 8. 1768. Southern coast of Jamaica.

4. CONSOLEA MILLSPAUGHII Britton

Opuntia Millspaughii Britton, Smiths. Misc. Coll. *50:* 513. 1908. Eleuthera and Great Ragged Islands of the Bahamas and on Cayo Paredon Grande, Cuba.

5. CONSOLEA MONILIFORMIS (Linnaeus)

Cactus moniliformis Linnaeus, Sp. Pl. 468. 1753.

Opuntia moniliformis Haworth; Steudel, Nom. ed. 2, *2:* 221. 1841.

Cactus ferox Willd. Enum. Suppl. 35. 1813.

Consolea ferox Lemaire, Rev. Hort. 1862: 174. 1862.

Distribution as above recorded. For additional synonymy see The Cactaceae *1:* 206.

6. CONSOLEA RUBESCENS (Salm-Dyck) Lemaire, Rev. Hort. *1862:* 174. 1862.

Opuntia rubescens Salm-Dyck; DeCandolle, Prodr. *3:* 474. 1828.

Distribution as above recorded. For additional synonymy see The Cactaceae *1:* 208.

7. The species discovered by Dr. Small on the Keys of Florida, to be described by him.

8. As regards OPUNTIA BAHAMANA Britton and Rose, The Cactaceae *1:* 203, from Cat Island, Bahamas, at the place of publication included in the Series SPINOSISSIMAE with hesitation, we have no additional information; it is a species requiring further study at the type locality, where I observed it, with Doctor Millspaugh in March, 1907, and I am thus unable to suggest its transfer to *Consolea* at present.

---

8. CEPHALOCEREUS ROYENI (L.) Britton & Rose.

Known in Porto Rico as 'Sebucan' and in the Virgin Islands as 'Dildo,' this cactus usually has a short, erect, columnar trunk about a foot in diameter, with several or many, erect or ascending, columnar green or blue, seven-to-eleven-ribbed branches up to about fifteen feet high, which are glaucous, at least when young. The numerous areoles are close together and softly woolly, bearing acicular, yellow spines about two inches long, or shorter, which fade gray; flowering areoles near the top of the branches bear conspicuous tufts of long, white wool. The campanulate-funnelform nocturnal flowers are solitary, about two inches long, greenish or purplish outside, the inner, slightly spreading segments nearly white. The depressed-globose, smooth, unarmed berry is reddish and about two inches in diameter, the many seeds black and shining.

This xerophytic species inhabits abundantly the dry southern and southwestern parts of Porto Rico, and we have recently observed an isolated colony at the foot of the headland at Cape San Juan. It is sometimes gregarious, forming groves; an extensive grove was observed near the Coamo River, between Paso Seco and Santa Isabel. It occurs on the small Porto Rico Islands, Desecheo, Mona, Icacos, Culebra and Vieques, and on all the Virgin Islands; also on St. Kitts and Antigua. In Porto Rico it extends sparingly, several miles north from the southern coast on to hills several hundred feet high, withstanding an annual rainfall of about forty inches in the vicinity of Coamo Springs, but most abundant and luxuriant in areas with from twenty-five to thirty-five inches.

9. LEPTOCEREUS QUADRICOSTATUS (Bello) Britton & Rose.

A highly interesting, xerophytic, endemic species, inhabiting the southern and southwestern coastal parts of Porto Rico, and hills a few miles inland, otherwise known only from

the Porto Rican island Cayo Icacos; it was first described by the Spanish botanist Bello in 1881. It is a bushy-branched cactus, locally forming thickets sometimes twelve feet high, its rather stout, often elongated, mostly four-ribbed branches arching and interlocking, several-many-jointed; the joints are dark green, the ribs low and thin, the areoles bearing several, grayish, acicular spines about two inches long, or shorter; the flowers are diurnal, about one and one-half inches long, and nearly an inch broad, the perianth-tube short campanulate and spiny, the spreading segments whitish, truncate; the numerous stamens are slightly exserted. The nearly globular or obovoid fruit is about two inches long, or shorter, sparingly spiny when young, smooth when mature. This species does not occur beyond the limits of an annual rainfall of about forty inches and is most luxuriant where it is less.

10. LEMAIREOCEREUS HYSTRIX (Haw.) Britton & Rose.

A xerophytic species, not observed on the Porto Rico mainland, but inhabiting the small islands Desecheo, off the western coast in the Mona Passage, and Cayo Muertos off the southern coast near Ponce. It occurs also in Jamaica, Cuba and Hispaniola. The annual rainfalls on Desecheo and Cayo Muertos have not been measured, but are probably not over thirty inches, and it is doubtful if the plant can endure greater. The English name SPANISH DILDO is applied to it; we obtained no Porto Rican name, for Desecheo is uninhabited and Cayo Muertos occupied only by the lighthouse keepers.

It has a short trunk about a foot in diameter, or branches from the base, the erect or ascending, stout, columnar branches from twelve to nearly twenty feet high, and three or four inches in diameter, with from nine to twelve rather narrow ribs, the numerous areoles felted, bearing several, acicular, grayish, brown-tipped spines nearly two inches long, or shorter. Its flowers are diurnal, about three and one-half inches broad, the outer segments green or purplish, the inner white; the tuberculate ovary bears small scales and spines. The fruit is subglobose, about two inches in diameter, scarlet, with clusters of deciduous spines.

11. HARRISIA PORTORICENSIS Britton.

An endemic, xerophytic species, of local occurrence near the southern coast of Porto Rico between Ponce and Tallaboa, and on Mona Island, evidently unable to thrive in a rainfall of more than about thrity inches. It has slender, upright, simple, or little-branched stems, six to ten feet high, the joints cylindric, and about an inch and one-half in diameter with ten or eleven low, rounded ribs, the approximate areoles bearing from thirteen to seventeen acicular gray or brownish, dark-tipped spines about two inches long, or shorter. The nocturnal flowers are about six inches long, the funnelform perianth with a cylindric, scaly but spineless tube about as long as the limb, its scales subtending tufts of white hairs; the outer perianth-segments are pinkish, the inner ones white, and about two inches long. The ovoid to globular fruit is at first tubercled, when mature yellow, about two inches in diameter containing very small and numerous seeds. We obtained no Spanish name for this rare plant.

12. HYLOCEREUS TRIGONUS (Haw.) Stafford.

Known as 'Pitujaya' in Porto Rico, and as 'Night-blooming Cereus' and 'Strawberry Pear' in the Virgin Islands, this climbing or straggling vine inhabits both dry and moist regions; it ascends in Porto Rico higher than our earlier records indicate, for we observed it in March, 1930, at an altitude of nearly 1800 feet, above Coamo, south of Aimonito. Its preference habitat is on rocks and it may attain a length of thirty feet, but it is sometimes seen ascending trees. Its range of rainfall adaptation is wide, from not more than thirty inches near the dry southern coast to at least sixty inches in moist regions. Its rather slender, three-angled stems and branches bear aerial roots; their joints are about an inch thick, the areoles, borne on the undulate angles, are armed with about 8 short spines two or three lines long. Its nocturnal flowers are nearly a foot long, unarmed and glabrous, the stout scaly perianth-tube about as long as the widely spreading limb, the outer segments green, the inner white. The mature fruit is oblong or obovoid, red, smooth, about four inches long. This species is widely distributed in Porto Rico and throughout the Virgin Islands, occurring also in Hispaniola, and it is recorded by Boldingh from the Dutch Islands St. Martin, St. Eustatius and Saba.

13. CACTUS INTORTUS Miller.*

The Melon Cacti impress those who see them for the first time as among the most peculiar of all plants, as, indeed they are. The species growing within the geographical area here under consideration is a xerophyte, restricted to

*See cover illustration. Reproduced from The Cactaceae by Britton & Rose.

rainfall of about forty inches or less; it has wide distribution, its most southern recorded range being on Antigua in the Lesser Antilles, thence north to St. Martin, on all the Virgin Islands and the Porto Rico islands, Vieques, Mona and Desecheo; on the mainland of Porto Rico in the southwestern coastal districts, north along the Mona Passage to Punta Melones, the southern point of Boqueron Bay, which takes its Spanish name from this plant, and we observed it recently at an isolated station at Cape San Juan; there is an old record of its former occurrence at El Fuerte, on the Coamo River near Coamo Springs, a dry rocky situation, from which it had disappeared prior to our search for it there in 1922; this point is about six miles from the southern coast of Porto Rico, much farther inland than any station known to us, but there seems to be no good reason to doubt the record. We have included the plant of the southern Bahama Islands in this species; it is not impossible that a new study of living flowering plants might modify this conclusion but I do not suggest modification under present knowledge.

Known as 'Melon de costa' in Porto Rico, and as 'Turk's-cap' or 'Turk's-head' in English, it has a heavily armed, fifteen to twenty-ribbed plant-body, which is subglobose or ovoid when old, from one to about two and one-half feet high, topped by a cylindric cephalium three or four inches in diameter and sometimes a foot high; young plants are depressed-globose, and, apparently have to be a good many years old before developing the cephalium, which bears the small, pink or rose flowers and fruits.

The ribs of the plant-body are about an inch to one and one-half inches high, crenate, and bear from seven to thirteen stout, subulate spines about three inches long, or shorter, at each areole, quite down to the base. The cephalium is a curious structure, consisting of very numerous bristly and woolly flowering areoles densely packed togther and confluent, the wool bright white, the bristles brown. The flowers are about half an inch long, smooth, with a nearly cylindric perianth-tube, and a short limb, which spreads in bright sunshine. The narrowly obovoid fruit is about an inch in length, exserted from the cephalium.

It may be noted that *Cactus Melocactus* L., the type species of this genus, is restricted in distribution to the arid southern part of Jamaica, and is a larger plant, reaching over three feet in height and with much larger flowers and fruit.

14. NEOMAMMILLARIA NIVOSA (Link) Britton & Rose.

Widely distributed as a xerophyte on many of the small Antillean islands, the 'Snow Cactus' or 'Woolly Nipple-cactus' has not been observed on the Porto Rico mainland; it inhabits rocks and cliffs on the Porto Rican islands Mona and Culebra; on Buck Island and Flat Cays, appertaining to St. Thomas, on St. Jan, St. James Island and Tortola of the Virgin Islands, and, probably other islets of this archipelago; also on the Bahama Islands Inagua and South Caicos, and Antigua in the Lesser Antilles.

This plant varies somewhat in size and shape; it is globose or oblong-globose and usually about four inches in diameter and in height, but occasionally becomes six inches high; the plants grow either solitary or several together in tufts or colonies, tubercled, with many conic, blunt tubercles about half an inch high, each bearing several, yellow, acicular spines nearly an inch long, or shorter, and, when young, tufts of bright white wool. The cream-colored flowers, borne on areoles at the bases of the tubercles, are nearly half an inch broad, the perianth-tube prolonged beyond the ovary, the segments pointed. The obovoid fruit is red, blunt, about half an inch long, when young crowned by the withering perianth.

The rainfall on Mona, where this plant occurs on the limestone plateau, is about thirty-five inches annually; on Culebra, where it occurs on rocks apparently volcanic in origin, it is about forty-one inches.

From the red-spined *Neomammillaria mammillaris* (L.) Britton & Rose, the type species of the genus, native of Curacao, and northern Venezuela, *M. nivosa* differs by its yellow spines and larger flowers.

15. RHIPSALIS CASSUTHA Gaertn.

When you tell interested but uninformed visitors that this plant is a cactus, they are likely verbally, or at least mentally, to doubt your veracity or to pity your ignorance. It does, certainly diverge from the general idea of a Cactus about as widely as possible. Pendent from trees, or occasionally on cliffs, in wet districts, very slender, completely unarmed, considerably branched, with whorled or opposite branches, and with minute flowers and small white fruits, it has no external resemblance to the plants commonly known as Cacti; our defense has to be a statement that the flowers and fruit, while inconspicuous, are similar in structure to those of normal Cactus types. Perhaps, in order to

avoid such humiliating explanations, it would be useful to recognize the Rhipsalidaneae as a family, so as to be able to say that this plant and its relatives are not Cacti, but Cactus relatives. Meanwhile we tell them that its English name is 'String Cactus,' or a Spanish name 'Pega palo,' because it sticks to trees. It is the type species of its genus.

The plant is mesophytic; in Porto Rico we do not know it in a rainfall of less than about sixty-five inches. There is an old doubtful and unsupported record from St. Thomas. Otherwise, in the West Indies it occurs, in Hispaniola, Cuba, Jamaica, Tobago and Trinidad, being curiously absent, or at least unreported from the Lesser Antilles north of Tobago; it is very widely distributed in continental tropical America, occurs in southern Florida, and is one of the few Cacti common to the Old World and the New, growing also in Ceylon and in tropical Africa.

It forms festoons from two feet to more than twelve feet long, its cylindric joints from one to two lines in diameter, smooth, or when young, with a few weak bristles at the areoles. Its flowers, borne singly at approximate areoles near the ends of the joints, have a rotate, whitish perianth about two lines wide, its segments (petals) distinct, and spreading; the stamens are few. The globose, white, glutinous berries are about two and a half lines in diameter.

I am aware that a member of the Society has expressed the opinion (Journ. Cactus & Succ. Soc. *1:* 13, July, 1929), that there are more species of the genus *Rhipsalis* than those recognized in "The Cactaceae." It is possible that within the very broad range cited for this species, in continental America, segregation might be effected, if series of living plants from different regions were brought together for comparative study.

FROM WM. HERTRICH

Mr. Scott E. Haselton, Editor:

In reply to your communication of April 4th regarding an article for the June issue of the Journal of the Cactus and Succulent Society of America, would say that while I promised an article and sincerely intended to contribute an article to this number, my illness of last month kept me away from my work and am still under the doctor's care with instructions to go slow as far as work is concerned.

Therefore, I feel unable to contribute that promised article for your June number. I am very sorry indeed that I am forced to acknowledge this but at some future date I will be glad to make up for lost time.

WM. HERTRICH,
Supt. Huntington Botanic Gardens.

PRESIDENT'S COLUMN

Do you know that the Cactus & Succulent Society of America is going to hold a show May 29, 30, 31 and June 1? Well, we are, and we, the Show Committee and the officers of the Society, know it if no one else does.

The Committee has met once a week since the middle of February and has accomplished a great deal and if anyone is under the impression that a cactus and succulent show just arranges itself, they should attend a few of the committee meetings and they would learn differently. Last year we had a good show —this year we will set a standard that I doubt will be bettered for many years to come.

We have arranged for entries of every known cactus and succulent with prizes for every class. Members and friends of the Society have been very liberal in presenting prizes and every one of them is appreciated. If you have not as yet made an entry, do so at once even if only one plant. We have a very large space and it requires lots of entries to make a successful show. We have a great many entries but need more,—do your bit.

All exhibitors will be given a season pass for the price of a single admission and you will all want to attend more than once, I am sure. There will be a department wherein you may sell plants or buy them.

This is an improvement over last year as we found that nearly everyone was anxious to take a cactus home with them and could not buy one. Also we have provided a lunch and soft drink stand so you may come early and stay all day. Arrangements are being made to have a movietone take pictures of the exhibit and the crowds clamoring for admission.

I wish to apologize for not answering all the letters I have received. I have been too busy.

This issue of the Journal is the last of our first year. We are proud of the results of our work. If you appreciate the Journal and wish to see it improve and prosper, send in your renewal at once, if you have not already done so as it requires real money to publish a Journal such as ours.

You won't want to miss a single copy so don't delay. The price is $3.00 per year including dues for one year. Each member must be a subscriber, excepting a second person in same family at same address may be a member upon payment of only $1.00 per year.

You can help your Society by getting additional members. We are aiming at the 1,000 mark for 1930.

Any out-of-town visitors wishing to make hotel reservations may communicate with me and tell me about what they desire. I will see that their wishes are carried out. There are accommodations to be had from $1.50 per day to $150.00 per day within walking distance of the show place.

I hope to see you at the show. Fill in your name and wear your badge.

Yours for a successful show,
R. E. WILLIS,
2721 Bellevue Ave., Los Angeles

TEN CACTI. All selected plants, correctly named and no two alike, suitable for indoor gardens or rockery, sent postpaid for $2.75. *Free List.*
BRIDWELL BROTHERS
WINKELMAN, ARIZ.

SPINES

By YSABEL WRIGHT

Illustrations by MARGARET KINCHER

Our Oliver Twist Editor has asked for more of Miss Kincher's illustrations of botanical terms used in describing cacti, so here are a few that are, one might say, to the point.

The first nine drawings illustrate the shape, or characteristics, of various cactus spines; the last six refer to the manner in which they grow, or are attached to the joint or rib.

Fig. 1 represents a *subulate* spine, typical of *Opuntia subulata,* that generous Opuntia which condescends to retain all through life nice fat perfectly obvious leaves that need not be hunted for with a microscope. This type of spine, is fairly thick at the base and tapers to a fine, slender point.

Fig. 2 illustrates the *conic* spine to be found occasionally on *Cereae.* This particular one is from *Cereus xanthocarpus.*

Fig. 3, an *acicular* spine, is needle-shaped, long or short. *Opuntia santa-rita* has acicular spines.

Fig. 4, *Ferocactus acanthodes,* and Fig. 5, *Ferocactus wislizeni,* will leave no doubt as to the difference between *tortuous* and *hooked* spines.

The flowing hair of Fig. 6 immediately suggests the much sought after "Old Man," *Cephalocereus senilis,* although books refer to this type of spines merely as *"bristles."*

The spines of *Opuntia echinocarpa,* encased in their transparent paper-like sheaths, are hard to portray, but an effort has been made in Fig. 7, the dotted lines indicating the enclosed, or *sheathed* spine.

Easier to recognize is the *glochid,* in Fig. 8, that bane of the cactus grower and the collector; those perverse, short, barbed bristles which attach themselves so persistently to one's hands, or whatever part of the human anatomy is unfortunate enough to come in momentary contact with them. *Opuntia microdasys* is a terrible example of this type.

The spine of *Homalocephala texensis,* shown in Fig. 9, gives an excellent idea of the *annulate* spine.

Now as to that important point in determining species, the position of the spines in relation to the plant. A *porrect spine,* (Fig. 10) is one that grows at right angles to the joint or rib, as in *Opuntia elata.*

Pectinate spines (Fig. 11) form a perfect little double comb, as in *Echinocereus pectinatus.*

Decurved spines (Fig. 12) *curved* downwards, as in *Opuntia littoralis,* while *deflexed,* (Fig. 13) are *bent* down at an abrupt angle, as in *Opuntia chlorotica.*

Fig. 14 shows the difference between *central* and *radial* spines, "a" being central and "b" radial, an important distinction in many descriptions.

In Fig. 15, one sees the *appressed* spines of *Gymnocalycium spegazzinii* which bend sharply back against the ribs.

GLOSSARY

Fig. 1 **Subulate**—Tapering to a slender point.

Fig. 2 **Conic**—Cone-shaped.

Fig. 3 **Acicular**—Needle-shaped.

Fig. 4 **Tortuous**—Twisting.

Fig. 5 **Hooked**—Definition obvious.

Fig. 6 **Bristles**—Slender, stiff hairs.

Fig. 7 **Sheathed**—Encased in a thin, papery covering.

Fig. 8 **Glochids**—Short, barbed bristles.

Fig. 9 **Annulate**—Ringed.

Fig. 10 **Porrect**—To stretch out radially.

Fig. 11 **Pectinate**—Like the teeth of a comb.

Fig. 12 **Decurved**—Curving downward.

Fig. 13 **Deflexed**—Bent abruptly downward.

Fig. 14 (a) **Central**—Extending from near middle of areole.

Fig. 14 (b) **Radial**—Extending from outer edge of areole like rays.

Fig. 15 **Appressed**—Pressed closely against rib or joint.

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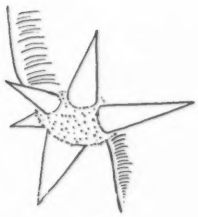

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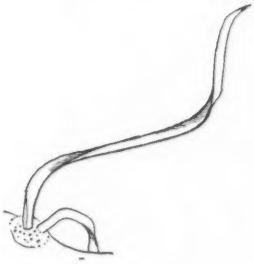

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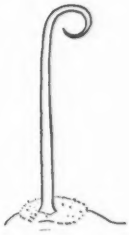

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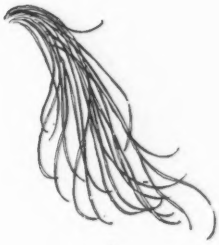

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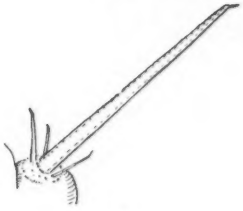

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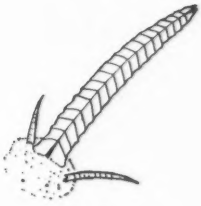

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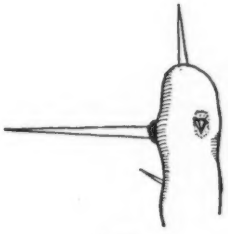

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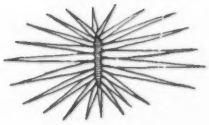

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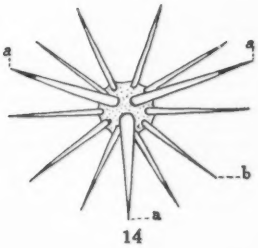

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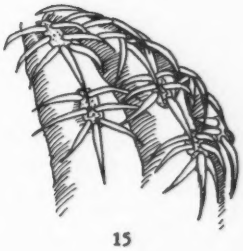


15

Gasteria cheilophylla Baker.
Photo by E.W. showing habit of plant. Approx. x0.08

GASTERIA

By ERIC WALTHER

Of the many succulent genera forming part of the rich and varied Cape-flora by no means the least valuable horticulturally is *Gasteria.* A majority of its species are of restrained habit, with compact rosettes of variously spotted leaves and slender racemes of gracefully pendent flowers in soft shades of rose, white and green; a combination of characters which makes these plants especially suitable for collections limited in space.

The name, *Gasteria,* has reference to the inflated perianth, and literally means "belly-flower." This character, in connection with the usually recurved corolla and the distinct, smaller and unarmed leaves, readily serves to distinguish *Gasteria* from *Aloe.* Nevertheless they are nearly related, so closely in fact that formerly the two genera were united under *Aloe.* They are undoubtedly of common origin, with *Gasteria* perhaps the most primitive and resembling the common ancestor the most. The connecting link may be sought in forms similar to *Aloe plicatilis,* with obscurely denticulate, 2-ranked leaves, or to *Aloe variegata,* whose trifarious leaves have markings and edges remarkably like those of a *Gasteria.* The last-mentioned *Aloe* has been particularly prolific of hybrids with *Gasteria,* another fact hinting at close relationship. We expect to have more to say about some of these hybrids soon.

Aside from the usually ventricose, more or less recurved perianth with its reddish tube and green-lined segments the genus *Gasteria* is well marked by the fleshy, spotted or tuberculate, entire or finely denticulate, often 2-ranked leaves. In most cases these leaves are sufficiently characteristic to permit of ready determination of the species without regard to the flowers, which last are in only too many instances very much alike, at least superficially.

Most common in our local collections is apparently *G. cheilophylla,* with glossy, spotted, obliquely keeled leaves in two spiral ranks, the rosettes becoming many-ranked with maturity.

The plants sucker freely, but the young offsets, as is customary in the genus, are of quite different aspect, with thinner, flatter, 2-ranked leaves. The inflorescence is an ample panicle, with several racemose branches bearing the usual

G. carinata Haw. Approx. x0.25
Reproduced from Dillenius, Hortus Elthamensis (1732), plate 18, Fig. 20. The first Gasteria ever pictured.

nodding, inflated, rose and green flowers. With proper treatment, this, as most other species, will flower twice a year. Almost as frequently cultivated is *G. verrucosa,* the warty Gasteria, having several varieties all agreeing in their rough-warty leaves and flowers that are rather more brightly colored than those of other species. Of quite a different type is what we here call *G. carinata* var. *strigata.* This has large, spiral rosettes of thick, recurved, trigonous leaves that may reach two feet in length, but the flowers are of the usual small, pale kind and could well be improved by hybridization. Of interest in this connection might also prove *G. acinacifolia* and *G. croucheri,* both with flowers fully 2 inches long. The three last-mentioned species are a part of the large collection accumulated by Mr. Wm. Hertrich of the Huntington Botanic Gardens, to study which the writer sometime ago had the opportunity. The key herewith appended is the result of these studies, and in so far as the said collection is representative of the species more commonly grown in our gardens, the key also should prove to be of more general application.

A few of the more desirable species as yet lacking here may be cited. We recommend *G. fuscopunctata,* the largest species of the genus, with an erect, much branched panicle and large, brown-spotted leaves; *G. maculata,* greatly resembling *G. planifolia* with its glossy leaves; *G. candicans* of the group *Grandiflorae* with flowers to 2 inches long; *G. fasciata* with beautifully marked leaves, etc.

Of some late introduction, by E. O. Orpet and others, we may mention *G. angulata, carinata, lauchei, subverrucosa, zeyheri,* etc., but as yet we have seen no flowers of these, and only young, probably atypical plants. Their admission into our key would be based entirely on trust in the names under which the seeds or plants were received; and while we may have become somewhat too cynical, our experience has caused us to be very chary about taking for granted any name in a genus so difficult and prone to hybridization.

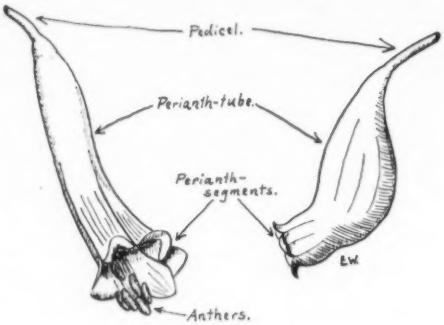
The cultural requirements of *Gasteria* are so easily met as to scarcely need mentioning. Most of the species are fairly hardy and will thrive under ordinary garden-conditions. Even if able to withstand almost any amount of drought and neglect and while appreciating the drainage furnished by rocks, light soil, etc., they by no means dislike moisture. On the contrary, these plants respond very favorably to good soil, frequent watering and partial shade. As far as we are aware, *Gasteria* suffers here from no serious pests, with the exception perhaps of an aphis (probably *Anuraphis tulipae* Fonsc.) which sometimes ruins the flowers. Most species sucker so abundantly as to make propagation a very simple matter. Furthermore, all species seem to be capable of increase by means of leaf-cuttings. The latter root surely, if sometimes rather slowly, when placed into slightly moist sand; and it is not essential to deatch the leaf with the base intact. A single leaf has been known to give rise to several dozen young plants, after hope of its every growing had been almost abandoned. Seed is only rarely produced locally without hand-pollination, the particular bees responsible for fertilization at home apparently having no effective understudy here ($*_1$). Or possibly the plants are self-sterile. Most of ours, having been derived from single seedlings

($*_1$)—See Marloth, loc. cit., page 87.

or imports by vegetative propagation, would consequently be impotent to pollinate other plants that are substantially the same individual. Cross-pollination offers a fascinating pursuit to the amateur possessed of some leisure, and requires no particular skill. The results should be quite valuable horticulturally, even if perhaps disapproved of by some old-fashioned systematists.

True enough, the genus is sufficiently difficult botanically, largely due to the fact that some species flower while still in the juvenile stage of habit and foliage, causing them to be named and described as distinct. That in cultivation the various species cross readily has already been mentioned; and only extensive field-studies in their native habitat can decide to what extent they also interbreed there, and how many valid species really exist. As most succulents, *Gasteria* also makes poor herbarium specimens, so that our main-reliance has to be placed in the available illustrations. The writer considers himself fortunate to have access to what is one of the finest botanical libraries of the Pacific Coast, i.e. that being accumulated at the California Academy of Sciences by Miss Alice Eastwood. Besides many other rare treasures this includes Dillenius' HORTUS ELTHAMENSIS, containing what is apparently the first illustration of any *Gasteria* (reproduced herewith). Other works seen were DeCandolle's PLANTES GRASSES, Haworth's SYNOPSIS, and Prince Salm-Dyck's classic MONOGRAPHIA GENERIS ALOES. The last is constantly referred to by Berger in his monograph, which we here follow. Unfortunately this is in Latin and not generally available. Trelease's treatment in Bailey's Cyclopedia is based on Berger, and does not include all of our material.

Of the 43 species admitted by Berger only 16 are known to the present writer from local material. A few of our plants are not with certainty referable to any known species and may be hybrids. Ten years before publication of Berger's work, Baker in the FLORA CAPENSIS already enumerated 43 species; and it is indeed curious that Berger added not a single species to the number. It seems improbable that nothing new remains to be discovered in this genus when our knowledge of all other succulent genera of South Africa has been so enormously enlarged of late years. Let us hope that we may



Two types of Gasteria-flower. Approx. x0.75

GASTERIA Duval—GENERIC DEFINITION:

(Lilaceae-Asphodeloideae-Aloineae-Aloinae.)

Plants succulent, stemless or nearly so, with rosettes of fleshy

Leaves borne in two straight or twisted, or many, ranks; with coriaceous epidermis whichis spotted or tuberculate; and with entire or cartilagineous-denticulate margins;

Inflorescence a lax, secund, simple or paniculately branched raceme.

Flowers pendulous, mostly reddish at base, above whitish with green-lined segments, 20 to 50 mm. long, usually ventricose at base, at middle narrowed and recurved;

Perianth-segments 6, much connate, slightly spreading at mouth;

Stamens 6, scarcely protruding;

Ovary superior, 3-celled;

Fruit a dry capsule.

Related to **Aloe, Haworthia** and **Apicra,** differing as follows:

A. Fls. small, erect, whitish; plants small, peduncles slender.
  B. Perianth-segments forming an upper and lower lip.....*Haworthia*
  BB. Perianth with equal, radially-spreading segments .....*Apicra*
AA. Fls. larger, pendulous or spreading, more or less colored
  B. Perianth swollen at base, or recurved, usually both; segments much connate; stamens scarcely exserted .....*Gasteria*
  BB. Perianth not inflated, or if so, not recurved; segments often only slightly connate, or stamens much exserted .....*Aloe*

G. cheilophylla Baker.

Showing part of inflorescence. Approx. x 0.4. *Showing single flower. Approx. x 2.5.*

soon be able to report the discovery and introduction of further material.

We were recently privileged to make the acquaintance of Prof. R. H. Compton, Director of the National Botanic Gardens at Kirstenbosch, near Cape Town; and we hope to persuade him to give us an original article on this or an allied subject soon. He told us, that at the Cape, where *Gasteria* is endemic, the plants inhabit the region of winter-rains and summer-drought. There they commonly grow in the shade of some shrub (a hint to our cultivators) and are most difficult to discern when not in flower. The truth of this was most forcibly impressed upon us when we tried to obtain a clear-cut photo of a growing plant in situ. Of numerous exposures the one here reproduced is the best, and even this is by no means clear, the *Gasteria* merging almost completely into the background. No doubt the leaf-blotches really serve as a kind of camouflage, protecting the plants from such enemies as they are bound to have in their native home. The circular, whitish spots of the leaf-surface closely simulate the image of the sun as projected onto the ground by a thin, discontinuous leaf-canopy; and this really seems to be a better explanation of their purpose than the theory that they protect the leaves from excessive sunlight.

In conclusion the writer invites any comment, as well as information and material of any species omitted, at his home address, 2667 McAllister Street, San Francisco.

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GASTERIA Duval. KEY TO OUR SPECIES:

1a. Lvs. mostly 2-ranked, usually with 2 sharp edges, only rarely with one or both edges truncate or doubled 2
—b. Lvs. of at least the mature rosettes in many, spirally-twisted ranks, conspicuously keeled or obliquely triangular in cross-section 11
2a. Lvs. with spots raised above the surface in the form of tubercles or warts 3
—b. Lvs. with spots immersed, surface not warty-roughened 8
3a. Lvs. rarely over 4-times as long as wide 7
—b. Lvs. to 5-times as long as broad or more 4
4a. Lvs. glossy, with large, scarcely protruding spots ..... *G. cheilophylla*
—b. Lvs. dull, with spots smaller, either very prominent, or very crowded 5
5a. Spots many, crowded, scarcely raised, confluent into longitudinal lines ..... *G. angustifolia*
—b. Spots distant, scarcely confluent, much raised 6
6a. Lvs. in 2 twisted ranks, occasionally keeled below and more or less deeply concave above ..... *G. margaritifera*
—b. Lvs. in 2 straight ranks, nearly flat on both sides ..... *G. verrucosa*
A. Lvs. to 30 cm. long; inflorescence branched ..... *var. latifolia*
AA. Lvs. shorter; inflorescence unbranched
B. Lvs. falcately curved at apex ..... *var. scaberrima*
BB. Lvs. straight.
C. Lvs. green, mucronate, warts less crowded ..... *var. intermedia*
CC. Lvs. dull-gray, warts crowded, apex acute ..... (type)
7a. (3a) Lvs. with apex obliquely mucronate ..... *G. dicta*
—b. Lvs. with straight mucro at apex ..... *G. brevifolia*
8a. (2b) Lvs. dull, pale green, slightly rougened by many fine, crowded spots, both edges truncate, surface channelled ..... *G. sulcata*
—b. Lvs. more or less glossy, with spots few and remote, not more than one edge is doubled or truncate 9
9a. Lvs. with both edges knife-like and sharp ..... *G. planifolia*
—b. Lvs. with one edge truncate or doubled 10
10a. Lvs. 25 to 35 cm. long and 4 to 5 cm. broad ..... *G. picta*
—b. Lvs. 12 to 17 cm. long and 20 to 30 mm. wide or less ..... *G. colubrina*
11a. (1b) Lvs. roughened by the more or less prominent tubercles 12
—b. Lvs. smooth, spots immersed, not protruding 17
12a. Lvs. mostly over 50 mm. wide at base 13
—b. Lvs. rarely over 40 mm. wide 15
13a. Lvs. straight, spots greenish-white with darker eye; fls. to 5 cm. long ..... *G. croucheri*
—b. Lvs. more or less falcate, spots without dark eye 14
14a. Fls. 40 to 50 mm. long; lvs. narrow, with tubercles of edges and keel confluent into continuous horny line to near base ..... *G. acinacifolia*
—b. Fls. shorter, 18 to 30 mm. long; lvs. broad, with marginal tubercles scarcely confluent ..... *G. carinata var. strigata*
15a. (12b) Lvs. more or less glossy, tubercles few, little prominent, usually more or less banded transversely 16
—b. Lvs. dull green, roughened by many crowded, prominent tubercles, the latter scarcely banded transversely ..... *G. margaritifera*
16a. Lvs. of young plants often 2-ranked, to 20 cm. long or more, nearly flat above, the lateral angle narrow, 10 mm. wide or less, margins with many small tubercles, those of back numerous, crowded, conspicuously banded ..... *G. cheilophylla*
—b. Lvs. nearly always spiral, shorter, often concave above, with lateral angle broader, marginal tubercles confluent into a few large groups, dorsal ones fewer, less conspicuously banded transversely *G. laetepuncta*
17a. (11b) Lvs. narrow, concave above, dark green with white spots ..... *G. trigona*
—b. Lvs. broader, nearly flat above, pale green with paler green spots ..... *G. variolosa*

LIST OF SPECIES GROWN HERE:

(NOTE: All are South African except where stated otherwise.)

acinacifolia (Jacq.) Haw. ..... B. M. 2369; S-D 29:11
angustifolia (Ait.) Haw. ..... DC. 68; S-D 29:30
brevifolia Haw. ..... S-D 29:8
carinata var. strigata (Haw.) Baker ..... B. M. 1331
cheilophylla Baker .....
colubrina N. E. Brown .....
croucheri (Hook. f.) Baker ..... B. M. 5812
dicta N. E. Brown ..... G. C. 1876; 6:68:18
laetepuncta Haw. .....
margaritifera Berg. (Hybrid grown at La Mortola)
picta Haw. ..... S.D 29:3
planifolia Baker ..... S. R. B. 162
sulcata (Salm.) Haw. ..... S. D. 29:32
trigona Haw. ..... S. D. 29:15
variolosa Baker ..... S. R. F. 347
verrucosa (Mill.) Haw. ..... B. M. 837, S-D 29:25
—*var. intermedia* (Haw.) Baker ..... S. D. 29:24
—*var. latifolia* Salm. ..... S. D. 29:25
—*var. scaberrima* Baker ..... S. D. 29:26

SECOND ANNUAL CACTUS SHOW

Ambassador Auditorium May 29, 30, 31, June 1

By NED LAWRENCE

Our first Cactus Show was a simple, rudimentary affair, wherein the members of the *Cactus and Succulent Society of America* got together some of their finer specimens and showed them off.

But it gave rise to a number of problems which the Show Committee is seeking to solve this year.

For instance, last year many observers who came to the show developed such an eagerness to buy plants that it became embarrassing to the exhibitors, most of whom were not in the business of selling Cacti. The matter was worked out by some sales being consummated, the plants to be delivered at the close of the show.

Even then, it was embarrassing to the buyer to be seen walking out of the show with a pot in his hand, or a slip in his pocket, and nothing to show whether it had been bought, begged or borrowed.

Now this year it is proposed to deal with buyers, in a fair and sensible manner.

One section of the exhibition will be apart as a commercial exhibit where any nurseryman, dealer or private individual may sell Cactus, Succulents or seeds, under the supervision of Mr. Brochelle. He will give to each buyer a bill of sale enabling him to take away his purchase at any time and to pass the doorman who will stamp the pot with the society's O.K.

The Society will profit from this commercial enterprise by taxing all sales 10 per cent for the general fund.

In order that this privilege may not be abused, and our national exhibition degenerate into a bargain-day sale of Cactus, it is provided in the rules that only exhibitors may display their wares on sale. That is, all collectors of Cacti and Succulents, whether members of the Society or not, are cordially invited to exhibit their plants, and no charge is made for entries. But it is not permitted for nursery-men and other commercial factors to enter Cactus in the sales department alone. They must also exhibit in order to sell.

The only other commercial aspect to the show which may require explanation is that certain spaces are set aside for booths with concessional rights to show other wares than Cacti and Succulents.

It is expected that these concessions will be taken by dealers in seeds, pots, garden tools and ornaments. Anything germane to the procedure of making a garden will be acceptable and interesting.

These side-lines will not in any way detract from the exhibition or depart from the principles and purposes of the Society which is to harmonize the efforts of those who are working singly for the conservation, cultivation and propagation of this flora which is indigenous to America and particularly characteristic to the Southwest. The general public is bound to be edified and correctly informed by observing standardized collections set forth without mercenary ideas or motives of private gain.

NOTE: All prizes offered are subject to change as other contributions, prizes, etc., come in too late to be published in this issue of the Journal. Ribbons will go with all prizes, 1st, Blue; 2nd, Red; 3rd, Yellow. Where less than 3 entries are made for any one class the judges may award 2nd prize for 1st and 3rd prize and 2nd, if in their judgment competing plants do not warrant 1st prize. All cash prizes not donated will be paid by the Society.

RULES

Owing to the large number of exhibits and the time required in judging the following rules must be strictly adhered to.

1st. If possible, mail your list a week ahead of time, to the Secretary, Mr. Boyd L. Sloane, 1421 Dominion Ave., Pasadena, so that your entry cards may be made up and ready for you. Your co-operation is earnestly requested in this, but if you find it impossible to do as requested you may fill it in after you arrive with your exhibit at the show place.

2nd. You must have your exhibit complete and be out of the building by 9 a. m. May 29, opening day. Judging will be done from 9 a. m. to 2:00 p. m., at which time the doors will be open to the public. No exceptions to this rule can be allowed. The building will be open all day May 27 and 28 and all night the night of the 28th, to receive exhibits.

3rd. Uniformity and neatness of receptacles used in exhibiting will have a bearing on the results in judging. Unclean pots, tin cans, etc., will detract from your exhibit. All labels should be uniform in size and position in containers or in the ground and should be neatly printed and correct if it is possible for you to obtain the correct name.

4th. Wherever competition is very close the judges will use the following scale:

General Effect of Staging	20 Points
Culture and Condition of Plants	25 Points
Correct Labeling	15 Points
Greatest Number of Species and Varieties	25 Points
Maturity of Plants Exhibited	15 Points

PREMIUM LIST

Request to members and friends of the Society. You will see below many vacancies in prizes offered and are earnestly requested to help the committee fill in these vacancies by sending in cash, cups, plants, or other prizes. Do it now.

A1 SWEEPSTAKES: Judged by the combined judges. One prize only.

Sweepstakes, Sterling Silver Cup, presented by Mrs. Ysabel Wright of Santa Barbara, Calif.

A2 BEST STAGED COLLECTION: Large or small—arranged for effect either in containers or planted out. Rocks, etc., permitted.

1st. Los Angeles Chamber of Commerce Cup.
2nd. A clump of Ferocactus acanthodes with 12 heads, presented by Mrs. Bertha Norwood, of Long Beach, calif.
3rd. One two-foot Carnegiea gigantea, presented by Mr. McKinney, Desert Nursery, Palm Springs, Calif.

A3 BEST RAREST CACTUS SHOWN.

1st. Cup, presented by Pres. Emeritus Dr. A. D. Houghton.
2nd. $5.00 presented by Mrs. Henry Bangs Lewis of Los Angeles.
3rd. Rare Plant, presented by Mr. E. O. Orput, Santa Barbara.

A4 BEST RAREST SUCCULENT SHOWN.

1st. Cup, presented by P. R. Bloodgood, Los Angeles.
Also 6 Dudleya ingens seedlings in 2″ pots, presented by Miss Kate Sessions of San Diego, Calif.
2nd. $5.00 presented by Otto Roller, Union City, New Jersey.
3rd. Sempervivum tabuliformis. Presented by Col. Jordan, Bellaire.

A5 LARGEST COLLECTION OF DIFFERENT CACTI.

1st. $25.00 Cash Prize presented by Alain C. White, Litchfield, Conn.
2nd. $15.00 Cash Prize presented by Alain C. White, Litchfield, Conn.
3rd. $15.00 Cash Prize presented by Alain C. White, Litchfield, Conn.

A6 LARGEST COLLECTION OF DIFFERENT SUCCULENTS.

1st. $25.00 Cash Prize presented by Mrs. Susanna Bixby Bryant.
2nd. One large Sempervivum Trealesei, presented by Ned Lawrence.
3rd. A fine plant of Echeveria matallica, presented by Mrs. Anna G. Powers of Oxnard, Calif.

A7 BEST COLLECTION OF GRAFTED PLANTS. Height of stalk in relation to scion.

1st. Miniature aquarium planted with succulents, value $25.00. Presented by R. F. Kado, Santa Monica.
2nd. Rare Plant, presented by Mr. E. O. Orput, Santa Barbara.
3rd. Rare Plant, presented by Mr. E. O. Orput, Santa Barbara.

A8 LARGEST COLLECTION OF DIFFERENT CRISTATES AND MONSTROSAS.

1st. The President's Cup, presented by R. E. Willis, Los Angeles.
2nd. 4-foot Cereus peruvianus, presented by Mr. J. C. Bultner.
3rd. Agave Victoria-reginae. Presented by Col. Jordan, Bellaire.

A9 BEST COLLECTION OF FREAKS: Unusual growths other than crests and monstrosities

1st. Trophy presented by Hugh Evans of Santa Monica, Calif.
2nd. Fine Cereus, presented by Mr. W. L. Maechtlen of Los Angeles.
3rd. One large Pediocactus simpsonii, presented by McCabe Cactus Garden, San Diego.

A10 BEST EXHIBIT FROM A DISTANCE: More than 200 and less than 700 miles from Los Angeles.

1st. $5.00 Cash and Express charges two ways. Presented by the Cactus and Succulent Society
2nd. $3.00 Cash and Express charges two ways. Presented by the Cactus and Succulent Society
3rd. $2.00 Cash and Express charges two ways. Presented by the Cactus and Succulent Society

A11 BEST EXHIBIT FROM A DISTANCE: More than 700 miles from Los Angeles.

1st. $5.00 Cash and Express charges two ways. Presented by the Cactus and Succulent Society
2nd. $3.00 Cash and Express charges two ways. Presented by the Cactus and Succulent Society
3rd. $2.00 Cash and Express charges two ways. Presented by the Cactus and Succulent Society

A12 BEST COLLECTION OF CACTI AND SUCCULENTS: Entered by Juniors under 18.

1st. $5.00 Cash. Presented by Miss Kate Walker, Santa Barbara; also plant presented by Carl Ackermann.
2nd. $3.50 Cash. Presented by Miss Kate Walker, Santa Barbara; also plant presented by Carl Ackermann.
3rd. $2.50 Cash. Presented by Miss Kate Walker, Santa Barbara, also plant presented by R. E. Willis

A13 BEST COLLECTION OF CACTI AND SUCCULENTS: Entered by a Garden Club or Community.

1st. Cup presented by Chas. Adams.
2nd. Plant presented by Mrs. E. F. Clark of Pasadena, Calif.
3rd. 6 cuttings each of 3 sorts of white Mesembrianthemums presented by Miss Kate Sessions of San Diego, Calif.

A14 BEST COLLECTION OF SEEDLINGS: Cactus or succulents under 2 years old.

1st. $5.00 worth of seeds, winner's selection, presented by Eugene R. Ziegler, Spencerport, N. Y.
2nd. Neomammillaria macdougalii presented by Col. Perrie Kewen.
3rd. Trichocereus spachianus presented by R. E. Willis.

A15 BEST SCHOOL EXHIBIT.
1st, 2nd, and 3rd prizes, plants presented by William Hertrich.

B1 BEST COLLECTION OF PERESKIAS AND PERESKIOPSIS.
1st. $3.00..... 2nd. $3.00..... 3rd. $1.00.....

B2 BEST COLLECTION OF OPUNTIAS.
1st. $3.00..... 2nd. $2.00.....
3rd. Euphorbia C. M. M. Presented by Col. Jordan, Bellaire.

B3 LARGEST COLLECTION OF EPIPHYLLUMS.
1st. $15.00..... 2nd. $10.00..... 3rd. $5.00.....

B4 BEST COLLECTION OF COLUMNAR CEREANAE: This includes Cereus, Cephalocereus, Trichocereus, etc. See Vol. II, Pages 1 and 2, B. & R.
1st. One 4-foot Carnegiae gigantea, presented by Mr. McKinney of the Desert Nursery of Palm Springs, Calif.
2nd. One fine Cereus, presented by Mr. W. L. Maechtlen of Los Angeles.
3rd. One Nyctocereus serpentinus, presented by Mrs. Francis Ghisi, of Los Angeles.

B5 BEST COLLECTION OF HYLOCEREANAE: This includes the vine-like, climbing, trailing or pendant cacti. See page 183, B. & R.
1st. $5.00..... 3rd. $2.00.....
2nd. One large Neomammillaria melacantha, presented by McCabe Cactus Garden, San Diego.

B6 BEST COLLECTION OF ECHINOCEREANAE: This includes Echinocereus and Echinopsis, etc. See Vol. III, page 3, B. & R.
1st. Coryphantha chlorantha, presented by Wright Pierce.
2nd. Coryphantha deserti chlorantha, presented by Wright Pierce. 3rd. $2.00.....

B7 BEST COLLECTION OF ECHINOCACTANAE: This includes Ferocactus, Echinocactus, Astrophytum, etc. See Vol. III, page 77, B. & R.
1st. Sclerocactus polyancistrus, presented by Wright Pierce.
2nd. One large Coryphantha recurvata, presented by McCabe Cactus Garden, San Diego.
3rd. $2.00.....

B8 BEST COLLECTIION OF CORYPHANTHANAE: This includes Coryphantha, Neomammillaria, etc. See Vol. IV, page 3, B. & R.
1st. 1 Neomammillaria spinosissima, presented by E. P. Bradbury of Fontana.
2nd. 1 Neomammillaria spinosissima, presented by E. P. Bradbury of Fontana.
3rd. 1 Neomammillaria spinosissima, presented by E. P. Bradbury of Fontant.

B9 BEST COLLECTION OF RHIPSALIDANAE: This includes Rhipsalis, etc. See Vol. IV, page 208, B. & R.
1st. $5.00..... 2nd. $3.00..... 3rd. $2.00.....

B10 BEST SPECIMEN OF ZYGOCACTUS OR SCHLUMBERGERA.
1st. Coryphantha chlorantha 2nd $3.00..... 3rd. $2.00.....

B11-100 BEST IINDIVIDUAL CACTUS PLANT OF ANY GENUS: Entries under this classification must be show standard to win.
1st. $3.00..... 2nd. $2.00..... 3rd. $1.00.....
You may enter here any cactus plant that you think is worthy of special attention.

C1 BEST COLLECTION OF EUPHORBIAS.
1st. Cup, presented by Mrs. John Wright, Santa Barbara.
2nd. $10.00..... 2nd. $5.00.....

C2 BEST COLLECTION OF MESEMBRYANTHEMOIDS.
1st. Cup presented by James West of San Raphael, Calif.
2nd. $5.00 presented by Mr. P. B. Crouse of Los Angeles 3rd. $3.00.....

C3 BEST COLLECTION OF ECHEVERIAS: Including Dudleya, Stylophyllum, etc.
1st. $5.00..... 2nd. $3.00..... 3rd. $2.00.....

C4 BEST COLLECTION OF ALOES.
1st. Fine plant presented by Mrs. J. H. Bullard. 2nd. $3.00..... 3rd. $2.00.....

C5 BEST COLLECTION OF HAWORTHIAS, GASTERIAS AND APRICAS.
1st. $5.00..... 2nd. $3.00..... 3rd. $2.00.....

C6 BEST COLLECTION OF SEDUMS.
1st. $5.00..... 2nd. $3.00..... 3rd. $2.00.....

C7 BEST COLLECTION OF SEMPERVIVUM.
1st. $5.00, presented by Mr. Frank Kenne, San Francisco 2nd. $3.00..... 3rd. $2.00.....

C8 BEST COLLECTION OF CRASSULA.
1st. $3.00..... 2nd. $2.00..... 3rd. $1.00.....

C9 BEST COLLECTION OF AGAVES.
1st. One Agave kerchovei, presented by Miss Kate Sessions of San Diego, Calif.
2nd. 2 Mesembrianthemums, presented by Miss Kate Sessions of San Diego.
3rd. 1 Mesembrianthemum, presented by Miss Kate Sessions of San Diego.

C10 BEST COLLECTION OF STAPELIAS.
1st. $10.00 presented by Overbrook Nurseries.
2nd. $5.00 presented by Mr. and Mrs. H. Lightfoot Forbes of Los Angeles.
3rd. 1 Mesembrianthemum, presented by Miss Kate Sessions of San Diego.

C11-20 BEST COLLECTION OF ANY OTHER GENUS OF SUCCULENTS.
1st. $5.00..... 2nd. $3.00..... 3rd. $2.00.....

C21-100 BEST INDIVIDUAL SUCCULENT PLANT OF ANY GENUS: Entries under this classification must be show standard to win.
1st. $3.00..... 2nd. $2.00..... 3rd. $1.00.....
You may enter here any succulent plant other than cactus that you think is worthy of special attention.

D1 BEST COLLECTION OF XEROPHYTES: In fancy pots or containers.
1st. Cup. Presented by Mrs. John Wright, Santa Barbara.
2nd. Beautiful 12" Mexican Bowl with rare stones and cacti from Old Mexico. Decorated, planted, and presented by H. P. Brochelle of Los Angeles.
3rd. One 3-foot Carnegiae gigantea, presented by Mr. McKinney of the Desert Garden, Palm Springs, Calif.

D2 BEST COMEDY LAYOUT: Must show horticultural skill.
1st. $5.00..... 2nd. $3.00..... 3rd. $2.00.....

D3 BEST MINIATURE CACTUS AND SUCCULENT LANDSCAPE: Amateur. Must be under 6 square feet. Applicable to desert conditions.
1st. Vase presented by A. J. Bauer Pottery Co.
2nd. Sterling Silver Spoon, Carnegiae gigantea handle, presented by Mrs. Lee Chamberlain.
3rd. Astrophytum asterias presented by G. A. Frick, Los Angeles.

D4 BEST MINIATURE CACTUS AND SUCCULENT LANDSCAPE: Amateur. Over 6 square feet. Applicable to desert conditions.
1st. Pasadena Horticultural Society Cup.
2nd. Sterling Silver Spoon, Carnegiea gigantea handle, presented by Mrs. Lee Chamberlain.
3rd. Vase made of cactus skeleton. Presented by Cactus Shop, Florence, Arizona.

D5 BEST MINIATURE CACTUS AND SUCCULENT LANDSCAPE: Professional. Must be under 6 square feet. Applicable to desert conditions.
1st. Vase presented by A. J. Bauer Pottery Co.
2nd. Prize presented by Mrs. H. D. Thaxter of Glendale.
3rd. Vase made of cactus skeleton. Presented by Cactus Shop, Florence, Ariz.

D6 BEST MINIATURE CACTUS AND SUCCULENT LANDSCAPE: Professional. Over 6 square feet. Applicable to desert conditions.
1st. Vase presented by the Italian Terra Cotta Pottery Co. 2nd. $3.00..... $3rd. $2.00.....

D7 BEST XEROPHYTE BOWL: Amateur.
1st. $3.00..... 2nd. $2.00..... 3rd. $1.00.....

D8 BEST XEROPHYTE BOWL: Professional.
1st. $3.00..... 2nd. $2.00..... 3rd. $1.00.....

D9 BEST XEROPHYTE BOWL: Junior.
1st. $3.00..... 2nd. $2.00..... 3rd. $1.00.....

D10 BEST LANDSCAPE GARDEN.
1st. $5.00..... 2nd. $3.00..... 3rd. $2.00.....

E1 BEST DISPLAY OF METHODS OF PROPAGATION OF CACTI AND SUCCULENTS.
1st. $5.00..... 2nd. $3.00..... 3rd. $2.00.....

F1 BEST EXHIBIT OF CACTUS GROWING AND HANDLING AIDS: Special tools, etc.
1st. $3.00..... 2nd. $2.00..... 3rd. $1.00.....

G1 BEST STRAWBERRY JAR: Succulents predominating.
1st. $5.00..... 2nd. $3.00..... 3rd. $2.00.....

H1 COLLECTION OF INSECT PESTS AND PARASITES, INIMICAL MOULDS AND FUNGI. 1st. Blue Ribbon. 2nd. Red Ribbon.

J1 BET COLLECTON OF PICTURES OF CACTI AND SUCCULENTS: May be either or both.
1st. Cup presented by Mrs. Jannock.
2nd. ..... 3rd. .....

J2 EXHIBIT OF CACTUS FRUIT.
1st. Blue Ribbon.

JUDGES: Cacti

Mr. Wm. Hertrich
Mr. Ernest Rost
Dr. Jacolyn Manning

JUDGES: Succulents

Mr. James West
Mr. E. O. Orpet
Mr. Eric Walther

Astrophytum myriostigma crestata

CRESTS AND MONSTROSAS

By Dr. Arthur D. Houghton

I have read with pleasure and interest the remarks of Mr. Orpet, Mr. West and Professor Johansen on cristates.

The word crest comes from the Latin crista galli—meaning a cock's comb. Cristate simply means crested. Scientists also allude to the same phenomenon as fasciation, from the Latin word fascia, meaning a band or filet.

We all know by experience what a cristate plant is, but it is not so easy to define it. The biological way should be to say that a normal plant has two axes of symmetry—a cristate, one plane of symmetry while a monstrose plant has no planes of symmetry. A perfectly round ball could be cut into equal symmetrical halves in three ways: it could be cut across its equator, or it could be cut down through longitudinally giving two symmetrical halves. It may be cut longitudinally at right angles to the other longitudinal plane. Now the stem of any normal

Cactus or other plant can be cut through from front to back, east to west, and the two sides will be symmetrical; or it can be cut through from north to south and the two halves will be symmetrical. So it may be said that a ball or perfect sphere has three planes of symmetry; a normal plant has two planes of symmetry, while a cristate plant has but one and the monstrose plant has no plane of symmetry as there is no way of cutting it so that one side of the cut will be symmetrical with the other.

Mr. Hertrich is quoted as claiming "that fasciation is due to plenty of plant food, a transplanting to richer soil and proves it." This proves how accurate observations such as his may lead one astray, as I will show later on.

Mr. Orpet speaks of the Texas hail storm which caused fasciation in Euphorbia lactea, but knowing his humor, I think he is poking fun.

One of the favorite theories is that injury is the cause of fasciation. Years ago, Mr. Zobel and myself worked on many thousands of Cacti, chiefly Echinopses, trying to produce crests by injury. The methods employed were: cutting through the growing center, crushing, slow crushing by increasing weight, needling, puncture by electro-cautery, and injury by electric sparks and chemicals. All kinds of peculiary malformed plants resulted but no crests. On the other hand, seedlings raised from crested Echinopsis multiplex gave about three per cent of crested progeny. Or the thinnest slice cut through the growing center of a crest, inserted in a knife wound through the growing center of a normal plant, grew to be a good crest.

Professor Hugo de Vries has investigated many crested races of plants, such as Ranunculus bulbosus, Rubia tinctorum, Veronicas, Cryptomerias, etc. He found that heredity alone was sufficient explanation—there are races of hereditary crest producers.

The science of genetics teaches us a lot about these matters. She only wants a few figures, for instance: what percentage of cristates were formed when a cristate was fertilized with its own pollen and what percentage was formed when it was crossed with a strain which produced no cristates.

All plants are built up of cells. Inside the cell is a portion called the nucleus, inside the nucleus are to be found elongated bodies called chromosomes. Strung along the chromosomes like beads on a string and so small as only to be seen thru a powerful instrument called mathematical analysis, are the genes. These are the units of heredity.

According to a well known physical law these tiny genes can only be removed by a force whose wave length is 680 times their length or less. X-rays and Milliken Rays qualify, as do also the electrons of potassium. X-rays are scarce in nature, but potassium is to be found in every plant, and its very prevalence would seem to exclude it as a cause or every plant would be affected. Milliken or similar Rays might occasionally knock out a gene which controls the heredity of meristematic symmetry.

Now in the case of the best known cristate, celosia cristate (cock's comb) you may plant seed which has a very high percentage of ability to form crests, grow half your seed in rich soil in heat, and the other half in poor soil and without heat, the well fed plant will make wonderful crests and the starved plants will show but little crest formation. The hereditary cristate formation was present in Mr. Hertrich's plant, and was merely brought out by good culture.

With James West we do not know whether a stimulant is introduced into the cells or an inhibition removed and like him we refuse to be tempted by the parallel with cancerous tissue.

Professor Farnum working on cristate ferns in England, many years ago, had this analogy very well in mind.

Injured plants in replacing their growing center frequently double the number of ribs by division of those first formed at the point of injury. This was deceptively hopeful at first, until I discovered the true test; that is, that the same rib must divide a third time in order to prove a beginning cristate.

I am in full agreement with Professor Johansen on only one of his hypothetical points and that, in his last sentence where he says "to my way of looking at the problem it would perhaps be more productive of results to start not with young plants, but with the egg cells in the ovules, just before fertilization would normally occur." That is the time to shoot the plants with X-ray or hang a tube of radium on the flower to catch both the ovules and the pollen mother cells.

ED. NOTE. The readers of the Journal will be glad to know that Dr. Houghton's book on Cactus is in the hands of the publisher. Those interested in securing a copy should leave their name with Dr. Houghton at the show.

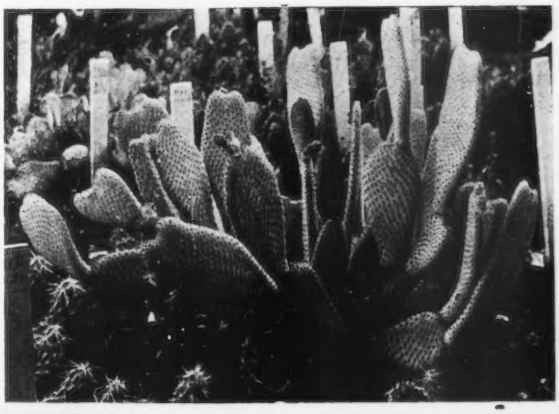
THE OPUNTIA BASILARIS GROUP

By DAVID GRIFFITHS

Twelve to 15 years of rather intensive study of one of the genera of the *Cactaceae* revealed many very interesting problems that in spite of good intentions and great desire, could not be investigated. The popular interest in the *Cactaceae* has to a large measure always revolved around the amassing of collections of unique or grotesque forms. This has always seemed to the writer to be a minor part of the interest that should exist in this unique group of plants. Worthy of the attention of the cactus fancier should be phylogeny, origin and development, significance of structures, causes of distribution, modification under culture, and results of cross breeding. Attention has been called to several cactus problems in a recent publication.*[1] Another will be pointed out here. Little more can be done, however, than to allude to the problem and show some of its ramifications.

Let us consider a few of the aspects of what may be called the Basilaris group of the genus *Opuntia*. Possibly it may be allowed that *Opuntia basilaris* is typical of the group which is so distinct from the remainder of the genus as to almost merit a subgeneric segregation. It is at least the first species of the group that received a botanical name and treatment. The center of its distribution is the great valley of the lower Colorado with its plains and mesas containing a very thin population of the species with basilate branching, and broadly obovate to retuse and obcordate joints.

From this great valley there radiate both east and west great streamers as it were of distributed areas extending long distances up the sides of the bounding mountains and even over their passes into the valleys beyond. It is in these long, sometimes threadlike projections of the distributional areas of the group that the main interest lies.



Upper: Opuntia basilaris, cultivated from cuttings collected at Mojave, Calif. Lower: Opuntia treleasi kerni, cultivated from cuttings collected near Kern, Calif.

It will be noted that the upper illustration from the desert side of the Tehachapi is entirely spineless, the lower from the valley beyond is densely spiny. *Opuntia treleasi* stands midway between these two, both in its distribution and its spination. The modification of these two species by culture and change of location will be readily recognized by those familiar with the plants in their natural habitats.

*[1] Cacti. U. S. Dept. Agr. Circ. 66, 28 pp., illus. 1929.

On the western slope of the San Francisco highland bounding the eastern aspect of the valley there are modifications in the plants which are quite striking but entirely different in their nature from those which have taken place in the western distributional extension of the central area. In some of the valleys, particularly about Owens P. O. on the Big Sandy and in the canyons above Wickenburg along the Hassayampa, the plants are still basilate (branch from the base) but not always so. The joints become very large, long, obovate, rounded at the apex, and gradually narrowed below into a stipitate base. Here also one finds in local areas a prevalence of the white-flowered forms which are so distinct in the color of the plant body as to be readily recognized at any season. Of course white-flowered forms are well known in another member of the group also.

It is on the west side of the main area that the greatest diversity and consequently the greatest interest obtains. The group here extends across the southern Sierras into the valleys beyond through several of the important passes. In and beyond the passes the members of the group have received distinct specific rank by botanists.

In the San Gregorio pass region the plants have assumed a more upright habit. The joints are comparatively small, thick, broadly rounded above with no indication of the obcordate apex to be found in some sections to the eastward and occasionally in the valleys to the westward. Occasionally in this section also white flowered forms are to be found. Mr. Parish brought some of these into cultivation, and he called the San Gregorio form *Opuntia basilaris ramosa.*

Greater and still more interesting changes take place in the group as it passes over the divide north of the San Bernardino Mountains. Beyond the Cajon pass no *Opuntia basilaris* is found, but in its stead we have *O. brachyclada,* which has the texture, touch, pulvini, etc., of *O. basilaris,* but the joints are short and nearly cylindrical like the fingers of one's hand. The plants are cespitose, resembling in habit members of the genus *Stapelia.* This grows on the gravelly, hard, sparsely brushed slopes above the washes.

In the edges of the washes themselves and close by, another species of the group occurs. In some respects it is the most remarkable of any in that it has long prostrate branches made up of five or six lentiform or more pointed joints. This has been named *Opuntia humistrata.*

The group became something very different again when it crossed the Tehachapi. At Caliente in the upper foothills of the western slope of the mountains we have *Opuntia treleasi* which is also ramose with strongly tuberculate fruits, and joints quite tuberculate and long, obovate with a few very short spines among the abundant glochids which are so characteristic of the entire group.

Farther down on the sloping mesas near the floor of the valley are found great areas thickly occupied by *Opuntia treleasi kerni* which is densely spiny throughout. No spines are known in the group except in the trans-Tehachapi region.

This is a well defined small group of cacti occupying a definite, continuous but very variable habitat. There have been four species and two varieties named. The differences on which the species were based are easily recognized. At one end of the scale the plants have no suggestion of spines but all are densely and characteristically spiculed. At the other end they are densely spiny, and the development of spination seems to progress gradually from the Tehachapi westward. A study of the group under cultural conditions to determine range of variation, relationships of species, articulation of the desert spineless and the San Joaquin Valley spiny forms, the nature and characteristics of seedlings, the behavior of hybrids, the origin and significance of the common albinism of the group would yield interesting information and might throw some important light on the phylogeny of the *Opuntioideae* as well as the origin and development of their spiny armature.

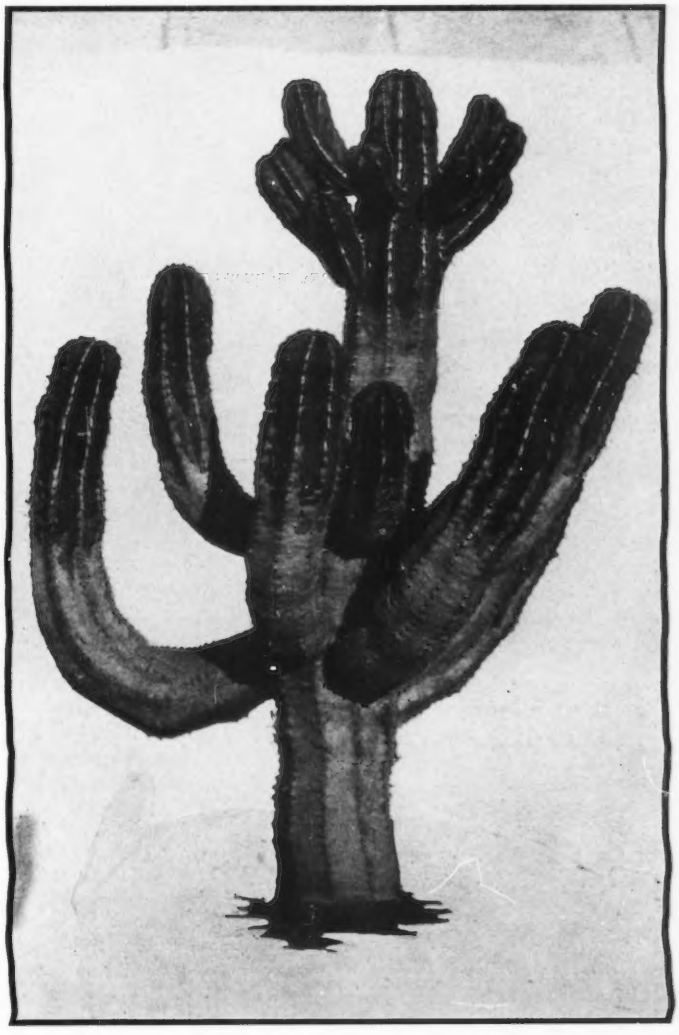
Dr. Arthur D. Houghton,
14714 Chatsworth Drive,
San Fernando, California.

Dear Doctor Houghton:

In response to your invitation I have put together some material which is considerably out of line with the ordinary cactus articles. It has always seemed to me that it would be very desirable if at least a part of the energy devoted to the amassing of collections in the Cactaceae were shunted into channels that would produce more fundamental results. It was with this object in view that I present these notes on the Basilaris group. You may find it suitable for your columns.

Very truly yours,

DAVID GRIFFITHS,
Senior Horticulturist,
Bureau of Plant Industry,
Washington, D.C.



Approx. x 0.33, Photo by Wright Pierce
E. officinatum

EUPHORBIA, SECTION POLYGONAE

By G. A. FRICK

The POLYGONAE group of Euphorbia embraces the largest number of species of any section of the genus; 32 of which are listed in Berger's *Monograph Sukkulente Euphorbien;* Dr. Marloth in his "*Flora of South Africa*" adds a few new discoveries made since the publication of Berger's book, together with new hybrid varieties created in the past few years,

the number today of recognized species and varieties is about 45.

Considerable confusion exists among both professionals and amateurs of the identity of many plants in this section, and this is particularly true of *E. officinarum* and *E. echinus,* the most common species found in the collections of the United States.

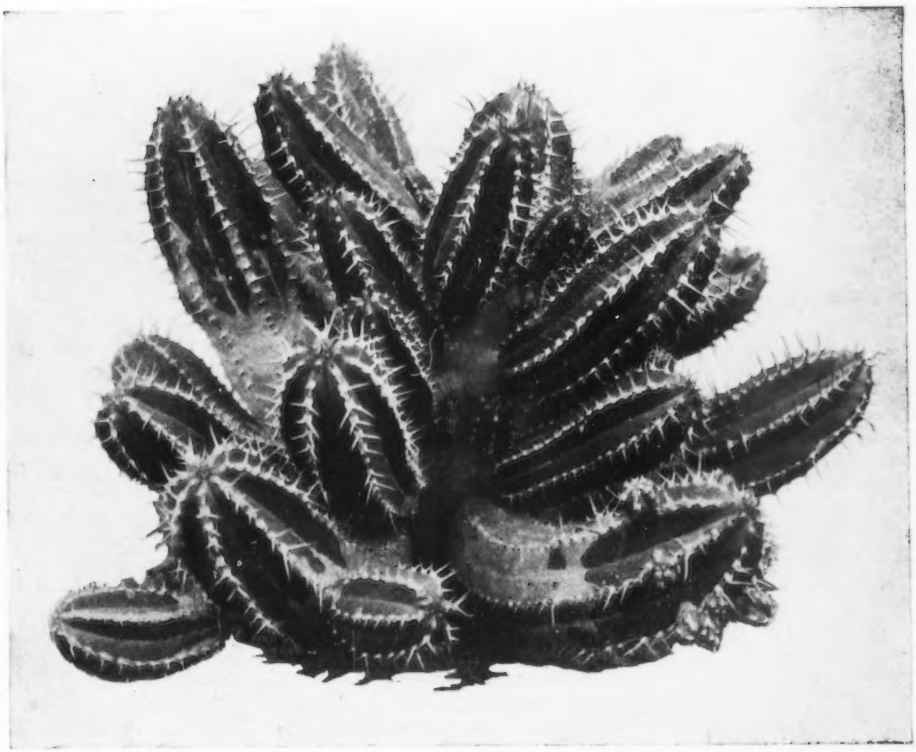
E. echinus, Hook (Hedgehog) has been sold for many years as *E. albaspina,* and *E. officinarum* Linn, as *E. erecta;* the latter grows erect as the photo shows, and the *Flora Capensis* Vol. 5 Sect. 2 describes an *E. arrecta* but the description does not fit this plant. Albaspina, Latin for white spine, truly describes the spine color of *E. echinus,* but no authority can be found for these names so the conclusion has been reached that *E. erecta* and *E. albaspina* are merely the trade mark of some dealer in plants, like the name Stetson in hats.

According to the *Flora Capenses, E. officinarum* was introduced into cultivation about 1730, and was collected near Sallee in Morocco, growing in abundance in dry rocky districts, where little else can grow. It is endowed with a great quantity of (Euphorbon), a virulent resinous substance that exudes from incisions made in the branches, and is so acrid that it excoriates the hands, when contact is made. When the latex of this species is introduced into a wound, or by accident gets into the eye, the most intense inflammation is produced. As it hardens, it falls in small lumps to the ground, and the natives who collect this drug, are compelled to tie something over their mouth and nostrils to exclude the small dusty particles, as they produce incessant sneezing. As a medicine its action is very violent, is a dangerous cathartic, and emetic and is rarely employed. It is also used by the bushmen of Morocco as one of the ingredients of arrow poison in their tribal warfare.

The following may sound like fiction, but it is a well known fact that, *E. officinarum* is pickled and eaten with relish by a tribe in Southern Morocco, known as the cactus eaters; and although the process of pickling appears to destroy in a great measure the poisonous, acrid and purgative properties which the plant possesses, its use as a food is by no means free from danger, and very often results in illness or suffering, also the poisonous principles which pervade this plant are more or less dissipated by heat, so with the pickling and cooking they seem to get by with it as food. Another and perhaps a better explanation was given the writer by a retired doctor living in Santa Barbara, California: In his travels he has visited that section of Morocco and his contention is that through many years of use as a food, this particular tribe has acquired immunity from the poison. He also ventured the opinion that pickled *E. officinarum* could not be very much more harmful to the body than the pickles we purchase at the corner grocery, and expressed a preference for the pickled *E. officinarum* over our 57 varieties (Attention James West). He also informs me that the stems are broken and the latex is used to mark burros and cattle, as the excoriation is sufficiently severe to burn into the hide, and wherever applied the hair is removed and no further harm is done the animal, answering the same purpose as the branding iron on our western cattle ranches. Renegade natives are also marked in this manner, the excoriated markings lasting for months on their body.

E. officinarum is very slow growing, plants in my collection have stood for three years without showing any indication of growth, yet these same plants, when placed in pots and set in the hothouse within 12 inches from the glass, seemed quite happy and took on a very rapid growth, proving that intense heat is what the plant likes. Cuttings do not root readily, and with but one exception, *E. officinarum* is the crankiest Euphorbia to establish, months being required and the chances are greatly in favor of loss. To determine the value of peat as an ingredient in a soil suitable to Euphorbia, I have made a test of growing this plant in pure German peat, and the success is wonderful, a small plant, although rooted at the time it was planted has produced from appearances better, healthier and more growth than those planted at the same time in ordinary soil. I am making similar tests with other species of Euphorbia and the results will be made known to the readers of the Journal in a future issue.

E. echinus Hook, is native to Southern Morocco, and with its bright white spines is a beautiful plant at all times, the stems are a light green, which makes a background that shows up the white spines conspicuously. Stems are 4 to 6 inches long, 5-6 and 7 ribbed and from one and one-half to two inches in diameter. The largest plant ever seen by the writer was not over one foot high. One of the most outstanding Euphorbias at the Cactus and Succulent show



E. echinus Approx. x 0.33, Photo by Wright Pierce

at Pasadena last year was the plant pictured here, in flower, hundreds of brown-red flowers covered the entire plant and attracted considerable attention.

Dealers in Succulents inform me that shortly after the Journal has been issued each month, there is a rush for the plants described or mentioned in its pages, and ask that more common plants be given the preference, so here is one Euphorbia that is sufficiently common to supply the demands of our many readers, being plentiful and sold at a reasonable price.

ANOTHER WORD FROM THE LITTLE GIRL WHO MAILS YOUR "JOURNAL"

By MARIE ANDERSON

In the November issue of the "Journal" it was announced that the large number of subscribers and members received from the State of Texas was a pleasant surprise to the Journal management. Since then, however, little New Jersey has crept up within close reaching distance.

Every State in the United States has "Journal" subscribers but one; that sole survivor of cacti-indifference is Montana, and yet this locality has one of the most interesting dwarf Opuntias. We are sure if the snow and ice melts sufficiently for this plant to be found by one of the citizens of this state this coming summer, we will yet get a member from that state and make it a full house.

Two more nations have been added toward making our subscription list world wide, they are the National Library of Ireland at Dublin, and a collector (evidently not a Turk) living at Constantinople by the name of McKay. Until recently, England was the leader in the number of subscribers in foreign countries, but today Holland leads by several subscriptions. Czechoslovakia is now listed among the many countries with subscribers to the Journal, also Switzerland and Danzig.

A German publisher of books on Cacti and Succulents consigned a shipment of books to us requesting that we try to sell them to our German members. An ad was placed in the January and February issue of the "Journal," and all were disposed of. Among the orders received was one from a person in Germany, living within 50 miles of the city where the publishing house was located! We are now wondering what this collector's reactions were when he learned the address of the publisher.

BOOK REVIEWS

By JAMES WEST, *San Rafael, Calif.*

KAKTEEN. *By Alwin Berger,* 346 pp., 105 figs. (Eugen Ulmer, Stuttgart, 1929.) M. 10.00.

This is the latest addition to the well-known series of Illustrated Handbooks of Succulent Plants by the same author. When it came to treating the Cactaceae in a volume comparable in extent with those concerning the smaller families of Succulents, one moreover, which was to be more fully illustrated, the problem of concentrating a great deal of information into a small compass became increasingly difficult. The author has solved the problem in the satisfactory manner to be expected from so noted an authority. Detailed keys to the species had to be sacrificed in the case of many of the more intricate genera, an omission which may be regretted by some readers, but concise yet workable keys to the larger divisions are given in all cases. It has not been attempted to include species not known to be in cultivation in Europe, but even so the index shows over 2000 names, including synonyms.

The descriptions, though short, give the essential characters, distribution and, occasionally, cultural hints for each species. The book includes quite a number of genera and species of recent discovery, hitherto not to be found in any general work, such as *Encephalocarpus strobiliformis* and *Porfiria schwartzii,* and is therefore completely up-to-date.

The treatment of the nomenclature will be of interest to our readers, especially those who have followed the more or less heated debates on the subject in our columns. Mr. Berger made it clear in his *Entwicklungslinien** that, as a botanist, he acknowledges the validity of nearly all the new genera of Britton & Rose. However, in the present volume, where he is writing mainly for the benefit of the amateur and grower, we find him willing to let hard-and-fast rules be mitigated by a sense of practical expediency.

In a country like Germany, where cactus-growing has been practised intensively for generations, and old-established names have become universally and intimately identified with the species that bore them so long, it would have probably seemed almost a sacrilege to have changed them at so late a date. While being able to sympathize with this point of view, we need not necessarily admit its validity under our own American conditions. The practise of cactus-growing on any extensive scale in this country is of recent date. We do not have to reckon with an old and extensive literature long familiar to the general cactus-growing public, nor with a widely distributed knowledge of well-established names. In our case, where the comparative novice is probably in the vast majority, the question of long usage is not nearly as important a factor as in Europe. For a novice, it would seem every bit as easy, as long as a new name has to be learned anyhow, to learn to say *Ferocactus acanthodes* as *Echinocactus cylindraceus,* while having the added satisfaction of being in line with the latest botanical thought. The interdependence that exists between the scientific botanist and the amateur-layman is peculiarly intimate in our field; much more so than is the case in any other department of horticulture. They need each other more; so the botanist has been kind to the cactus- and succulent-grower in the past, has smoothed his way and regarded his convenience somewhat more than is his wont elsewhere; perhaps it is now the turn of us laymen to give in to him!

To return from this digression. The author retains, for the purposes of this amateur's manual the all-embracing genus *Echinocactus* Link, for instance, in nearly its old extent, but prefaces the various groups, as throughout the book, with the new generic names as subgenera. Among the exceptions are, reasonably enough, the cases of genera comparatively new to cultivation, where in the nature of things established usage was no consideration. So we find, among the *Echinocacteae, Aztekium* and *Obregonia* given equal rank with *Echinocactus,* while genera long represented in collections, like *Malacocarpus* or *Gymnocalycium* are treated as sub-genera. What seems rather strange, is that so familiar a name as *Astrophytum* is not adopted, while *Lophophora* remains.

In a few cases the rejection of Rosean names is governed as much by botanical as by practical

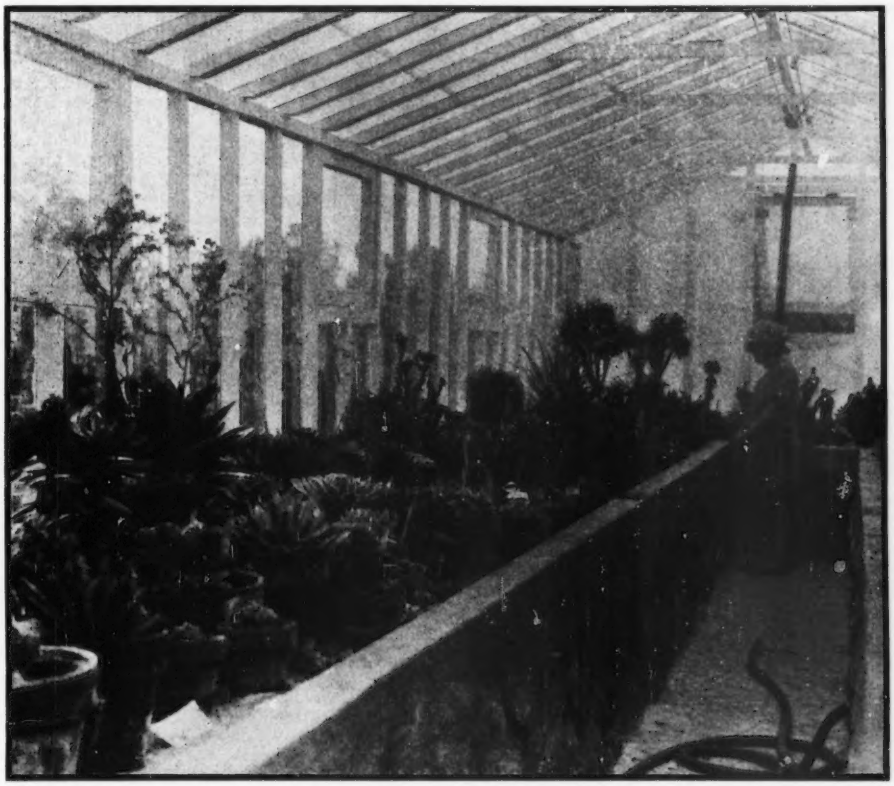
*See review, Journal for July, 1929, p. 8.

considerations, e.g., in the case of the tongue-breaking genus, *Echinofossulocactus,* whose species are grouped under *Stenocactus,* Sch. Those species of *Cephalocereus* B. & R. lacking a true pseudocephalium come under the heading *Pilocereus,* e.g., *C. chrysacanthus. Piptanthocereus* Berger as sub-genus replaces the genus Cereus proper of B. & R.

In all cases the Britton & Rose names are included as synonyms, so that the use of the book presents no difficulties to those familiar with them alone.

The illustrations from photographs are well-chosen and clearly reproduced. The book contains a chapter on culture written by E. Wagner.

Kakteen can be confidently recommended as probably the best handbook of moderate size now available.



Prize winning Succulents in typical California greenhouse of J. A. Ekdom, Pasadena, Mr. Ekdom, Supt. of El Mirador Ranch, is Chairman of the Show Committee and his success in growing Cacti and Succulents is enviable indeed. At the recent Flower Show in Pasadena, he received 1st Prize for Succulents, 1st Prize for Cacti, 2nd Prize for Succulents, 2nd Prize for Cacti. The Greenhouse is 30x10 feet and has no artificial heat.

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IN LOWER CALIFORNIA

FROM F. WEINBERG

We have been, botanically speaking, more than successful up to now, besides getting two mountain lions and three mountain sheep.

We have averaged about 35 to 40 miles per day, made many side trips, had to make our own roads. Weather all along too cloudy to obtain any good photos, but collected a fine lots of plants among which are about 100 or more very fine *Cereus gummosus* cristate and *Cereus emoryi,* also a dozen *Cereus pringlei* cristates and *Cereus thurberi* cristates, *Cereus strictus* (Attention Dr. Houghton!), *Opuntia tesajo, Cereus mamillatus* and the very rare *Mam. lesaunieri* and *Cereus pringlei.* For friend Frick and other Euphorbia fiends, I found *Euph. pteroneura* and another Euphorbia, but having observed the seed of the latter, it turns out to be no Euphorbia at all, but has to be made into a new species!

I collected a *climbing* cylindrical Opuntia, also a *Cereus* which will be a conundrum or puzzle for a lot of cactus fanciers and especially for some of the wise men; I am positive there is not one single plant in cultivation anywhere at present. I have about a dozen plants of these plants, and if I am not too late for the next show, I will put the plant on exhibition and anyone who can tell me what the plant is, I will give them a plnat, or else he may select $50.00 worth of different plants out of my exhibition. Collected some fine *Opuntia invicta* and different *Agaves* and *Dudleyas.* I also hope to clear up at the next show, my statement about *Ferocactus acanthodes* vs. *Echinocactus cylindraceus.*

We are making headquarters here temporarily assorting our collection, packing and shipping same to Europe. We will leave here for Cape St. Lucas next week. There are supposed to be growing around here in the hills a mysterious Opuntia, similar to old man cactus, but as yet did not find it, but found in a canyon some 60 miles from here *Mam. microdasys* and got 10 fine cristates. Also found a few *Ec. lloydii!* high in the mountains. I hope you fellows will make the show as late as possible in order that I may be able to be there.

With best regards to all and especially to you and the readers of the Journal.

F. WEINBERG.

FROM HOWARD E. GATES

La Paz, Baja Calif., Mex.
Mar. 3, 1930.

I have seen the creeping devil cactus creep on the shores of Magdalena Bay, gathered the cast de rata, (rat's house), been stuck by the jumping cholla of Comondu and rode by towering cardons until I see spines in my sleep. I've been down to the axle a dozen times in mud, stuck in sand, had to carry part of my load up grades, bumped over rocks, broke a universal joint in El Arenoso (The Sandy Place) and again on a hill, been through El Purgatorio and down the grade into El Inferno, turned the truck flat on its side, been in perils on the seashore and mountain tops, under overhanging rocks and leaning cardons, between the living rock and deep pits. I have cut off tree limbs and filled up chuck holes and drank water out of ruts in the road, forgotten what a bridge looks like and been sick in Mulegé but near the end of the road is La Paz (The Peace) and the trip has been wonderful.

I surely apprceiated your courtesy in sending the magazine to La Paz. So far I have been too busy to write stories, but they will come.

HOWARD E. GATES.

EXCHANGES

Conducted by

Mrs. W. M. Ketteringham

610 W. 65th Street, Los Angeles

Mail a list of your duplicate plants to above address stating what you wish in exchange. Your only expense will be postage. A list will be published each month, offers must be in not later than the 5th of the month to be in the following month's Journal. Always enclose address stamped envelope for answer. Address all communications on exchanges to the above name and address. There will be an exchange counter at each meeting; bring your duplicates and exchanges will be arranged whenever possible. No expense to you.

Many rare varieties of exotic seedlings, want Euphorbias or other good plants.

Exchange Offered

Native Texas cactus, want Euphorbias.

100 different Opuntia and Nopalea cuttings, some rooted, only a very few named. Want any rare plants. Will exchange ten to one.

Six varieties of Echinopsis, 1½" buttons, want any Mexican cactus.

There will be an exchange booth at the coming show. Bring your duplicates and see what is offered. You may find just the plant you have been longing for.

TEXAS CACTI

Texas Cacti, a book of 200 pages, has just been published by the Texas Academy of Science, Witte Museum, San Antonio, Texas. The authors are Ellen D. Schulz and Robert Runyon. The book is very well illustrated and its contents include cactus culture, history, as well as popular and scientific names. This edition has been limited to 2000 and sells for $1.35.

Mrs. John D. Wright, whose articles we prize so highly, recently exhibited at the Santa Barbara flower show and her unique display attracted much attention.

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of America

THE GENUS OPUNTIA, SERIES V AND VI

BIGELOVIANAE

By Dr. Arthur D. Houghton

This series is named in commemoration of Bigelow, who, largely in conjunction with Dr. Engelmann was a pioneer botanical explorer of the great spaces of the southwestern portion of the United States and the northwestern boundary of Mexico.

Two species only are recognized by Britton and Rose, and, indeed they seem to form a closely related pair, easily distinguishable from plants of the series *Echinocarpe* on the one hand and plants of the *Imbricate* on the other.

The dry fruit of the *Echinocarpae,* and the fleshy fruit of the *Biglovianae* and the *Imbricatae,* acts as a guide, while the tubercles on the young joints on the series *Biglovianae* which are scarcely longer than broad, assist in separating them from the *Imbricatae* in which the tubercles are narrow and high.

The *Bigelovianae* are usually represented by low, bushy plants, with short definite trunks, although, in certain portions of their range, magnificent tree-like specimens are to be found.

Opuntia bigelovii, Eng., and *O. ciribe,* Eng., are the species of this series. *O. bigelovii* is the most densely spiny of all the *Opuntias.* The moonlight shining upon the dense matted masses of white paper sheathed spines has caused it to be called the 'Ghost Cactus.' It is usually less than a yard high and the lateral branches are always short, usually not over six inches and turgid (fat). The lower branches have a downward tendency while the higher younger branches are erect (have an upward tendency). The tubercles are slightly elevated, pale green, diamond shaped, about ⅓ of an inch long and the same width; the spines are yellow to white; the flowers on the tips of the branches, including the ovary, nearly two inches long are from pale magenta to crimson; the ovary, nearly an inch long, has needle-shaped spines and brown wool in its areoles. When the ovary becomes a fruit, it loses the wool and spines, but has strong tubercles, the upper ones of which are larger than the lower.

O. bigelovii has a wide range extending from southern Nevada, Arizona, California, northern Sonora and northern Lower California. This species is highly prized in collections on account of its sheer beauty, but is rather difficult to keep because plant lovers usually kill them with kind-

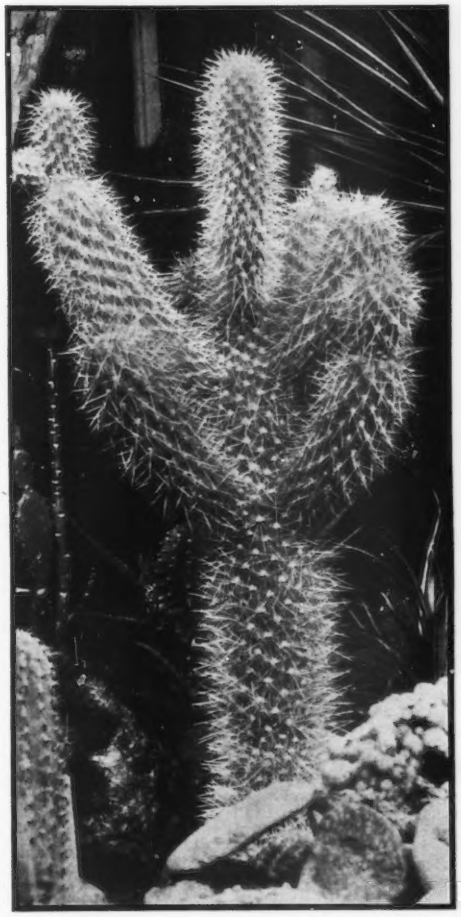

Photo by Otto Roller, New Milford, N. J.
Opuntia bigelovii Eng.

ness. They will stand plenty of water when warm weather first comes and the growth urge is on, but they require absolutely perfect drainage, some lime in the soil and no water for months when quiescent (not growing).

O. ciribe, Eng., from Comondu in the South, northward beyond Rosario, Lower California, grows about 4 feet high, the branches over reduced to balls. It is not nearly so spiny as *O. bigelovii,* and the sheaths and spines are dirty gray to black. The fruits are also more globular than those of *O. bigelovii,* and strongly tuberculate both at the upper and lower portion of the fruit which when ripe is spineless.

Imbricatae

This series, the sixth of Britton and Rose belonging to the cylindrical Opuntias with paper sheathed spines is so named because the tubercles are imbricated, that is, have the appearance of overlapping like tiles. The *Imbricatae* are placed between the series *Bigelovianae,* in which the tubercles of the young joints are scarcely longer than broad, and the *Fulgidae* which have tubercles like those of the *Imbricatae,* that is, distinctly longer than broad. However, the tubercles of *Imbricatae* are narrow, high, and laterally flattened, while those of the *Fulgidae* are broad and low.

There are eight species natives of Mexico and southwestern United States. The joints are cylindric in all the species of this series except those in *O. molesta* which are clavate (club shaped).

O. cholla, Web., from Lower California is a tree-like plant up to 10 feet high, with almost smooth fruit of a deep purple color. The fruits are usually proliferous (growing out of one another) in chains of 8-12. Its branches 2 inches thick readily distinguish it from *O. calmalliana,* Coult., which has branches less than 1 inch thick. It has 4 spines to an areole and the plant is glaucous (bluish hoary). It, like *O. cholla,* comes from Lower California, taking its name from Calmalli, a small town.

O. versicolor is, perhaps, the most interesting of the series from the fact that there are several strains of this species, each having flowers of a different color, all of them of great beauty. It is distributed along the lower foothills of Arizona and northern Mexico. Like the two preceding species the fruit is not tuberculate; and unlike *O. calmalliana,* the plant is not glaucous and it has more than four spines to an areole—indeed there are sometimes 11.

O. lloydii, Rose, from central Mexico, as well as *O. imbricata, O. tunicata* and *O. pallida,* differ from the rest of this series in having fruits which show tubercles. While *O. lloydii* and *O. imbricata* make trees up to 12 feet high. *O. tunicata* and *O. pallida* are low growing plants. *O. lloydii* is easily distinguished from *O. imbricata* by having much smaller flowers.

O. imbricata, Haw., which ranges from central Colorado to Texas, New Mexico and central Mexico, is much desired for its bold appearance in Xerophytic gardens. It is an old favorite having been introduced to cultivation in England by Loddiges in 1820. The flowers are borne on the ends of branches and are very large, sometimes 4 inches across, usually purple in color.

O. tunicata, Lehm, from central Mexico, a low growing species about 2 feet high, whose yellow flowers and the density of its spines make it easy to determine; joints fall off very readily. Its reddish yellow spines are normally 6 to 10 to an areole up to 2 inches long, are covered with white papery sheaths.

O. pallida, Rose, from Hidalgo, Mexico, is very much like *O. tunicata* from which it differs by being larger and having pale, rose-colored flowers. It grows in a bush which is often wider than it is high; it grows in association with *O. imbricata* from which its dwarfness and lighter colored flowers easily distinguish it.

O. molesta, Brand, differs from all the rest of this series in having club-shaped joints. It is from San Ignacio, Lower California. It grows to 7 feet in height with purple flowers and is exceedingly rare in collections.

EDITOR'S NOTES

The regular format of the Journal has been 20 pages printed in one color. Vol. II which starts with the July issue (mailed between the 1st and 15th of each month) will be the usual format. This statement is made so that there will be no misunderstanding between this special issue and those following. The subscription price (with or without membership) is $3.00 per year and should be mailed to the Secretary. All contributions are voluntary and none of the officers of the Society or Magazine receive monetary compensation. The Society and Journal are entirely dependent on its subscription price and the advertisement received. The business policy is sound and the Journal's future looks bright indeed. Subscribe now and tell your friends about the Journal so that we may continually improve each issue.

The index of Vol. I will be completed within 60 days and will be sent free to any subscriber interested. You will need this for reference and completes Vol. I. Write to the Editor for a copy.

A CORRECTION

On page 218, San Antonio, Texas, was reported as having zero weather last winter. We are advised that the lowest temperature for last winter was 11° above zero. The coldest weather on record for San Antonio was in 1899, when 4° above zero was recorded.

Sedum mexicanum

AN INTERESTING SEDUM

By L. H. BAILEY

It is hardly necessary to introduce Liberty H. Bailey to anyone interested in Horticulture. It is both a pleasure and an honor to welcome to our columns the Editor of "Bailey's," the one book indispensable to any grower and lover of plants; the author, during a long life full of high attainments, of almost numberless volumes on horticulture and botany, no less charmingly written than replete with information; the man who has, by the force of his own inexhaustible enthusiasm, inspired more people in this country to a true love and understanding of plants than any other we can think of. We look forward with eagerness to further contributions from Dr. Bailey's pen. J. W.

In the autumn of 1927 I was attracted by a Sedum strange to me in a porch-box at a farm house in central-western New York. It had no bloom. I obtained a slip and the following June it gave me bright yellow flowers. The plant matched well with the description of *Sedum mexicanum,* Britton, founded on plants "raised from seeds collected near the City of Mexico." In Praeger's excellent monograph of cultivated Sedums, 1921, *S. mexicanum* is entered as a plant of probably older cultivation than the founding of the species by Britton in 1899 would indicate, but still observed in only a few widely separated localities in Europe either without name or wrongly named; and Praeger adds, "to my surprise, as a pot plant in a cottage window at Thomastown, in Col. Kilkenny, in Ireland."

I sent a specimen to Mr. Praeger, who verified the identification and wrote that since the publication of his paper he had seen it or had been sent it from Sweden, Germany and Bulgaria as a house or cottage plant, and had "seen it abundantly as an edging plant in Portugal, Madeira and Canary Islands." Probably the plant had become widely disseminated before it was recognized and described as a new species. In the past year or two I have seen it frequent-

ly as a porch-box plant about Ithaca, New York. I have taken it in a commercial greenhouse as *Sedum aureum*. I wonder whether it is also widespread on the Pacific Coast.

The illustration shows the graceful habit. The bright green light-colored foliage makes a cheerful subject, accentuated by the many upright stems. The leaves are nearly terete, as much as one inch long on sterile shoots. The flowers are bright somewhat golden-yellow and showy. The plant is well worth while.

NOTE BY E. W.: It is common in California gardens and Prof. R. H. Compton stated that this species of Sedum is frequently cultivated in South Africa.

Kate Session's Aloe identified by Walther x 0.05

ALOE MACROCLADA Baker

In the present writer's article on *Aloe* (*), the hope was expressed that someone would seriously undertake the introduction of some of the many desirable species still lacking in California's gardens. It is our pleasant duty to report the flowering of the above species for the first time, not only here, but probably for the first time in cultivation anywhere. In A. Berger's monograph of the genus he states that to his knowledge *A. macroclada* Baker was not in cultivation. We owe the introduction of this interesting *Aloe* to the enterprise of our friend, Kate Sessions of San Diego, widely known as one of our most energetic plant-introducers.

The plant shown in the accompanying photo originally had a 4-branched inflorescence, one of the branches having been sacrificed for our benefit before the picture was taken. It agrees perfectly with Berger's description; and it takes its place in his classification as follows:

A. macroclada Baker (Journ. Linn. Soc., XX, 273; 1883) Central Madagascar.

Section EUALOE; Subs. E. MAGNAE; Group 26. PRINCIPALES.

The latter group includes the well-known *A. salm-dyckiana*, and our species may be distinguished from its allies by the sessile flowers with perianth-segments connate only near the base.

The flowers are borne in elongated, very dense-flowered spikes several feet long; the perianth is nearly white with greenish markings, but the general effect of the flowers is yellowish-orange due to the prominently exserted stamens, which latter lend the whole thing an appearance much like a bottlebrush. Miss Sessions makes the following comment: "Foliage bright light green; flowers very small, insignificant, promising in bud, but the effect spoiled by the persisting, faded flowers."

The writer invites communication of any further material for identification.

ERIC WALTHER,
2667 McAllister Street,
San Francisco, Calif.

(*The Journal of the Cactus and Succulent Society of America, December 1929, Vol. I, No. 6, p. 1-3.)

A CORRECTION

Editor, Journal of the Cactus and Succulent Society:

I wish to call your attention to the very incorrect report on the Succulent Show on page 205 of this last fine edition of our Journal.

The Junior division did make a great hit and the McKinley School of Pasadena did win a cup but from there on the report is all wrong.

The eight year old boy is Billy Charles, not Clark, and he goes to the La Canada School and has a cactus club formed of six (6) little boy friends—not half a hundred.

The silver cup which was credited to him was won by the Boys' Cactus Club of the Third Street School, Los Angeles, for their miniature cactus garden and a pan of seedlings (this club is a member of your national organization and now number 93 members, all boys of the 5th and 6th grades).

By the way, we are boasting that we are the largest Cactus Club of Boys of the same age! That's a challenge!

In all fairness to my own small boy and to my boys of "Third Street" I feel this ought to be corrected.

Sincerely yours for the future of cactus,
MRS. B. A. CHARLES,

EDITOR'S NOTE: We regret that these errors were made and trust that this letter will correct the situation.

AN EDITOR'S DREAM

By SCOTT E. HASELTON

When the small group of cactus enthusiasts met at Col. Kewen's home just one year ago, little did they realize the importance of their vote to start a Cactus Journal for and by the Cactus and Succulent Society of America. Enthusiastic, yes, and eager to work so that a magazine of importance could be realized for cactus fancier and botanists. And now, among our subscribers, are botanists, scientific institutions, U. S. Government departments and libraries—all of which recognize its scientific value. The kind letters and voluntary contributions from all over the world, further show the popular acceptance of the only cactus magazine published in America, endeavoring to cover the field of cacti and succulents exclusively.

Now that the first twelve issues have been completed, we are looking for greater achievements in Volume II. There will be no elaborate or spectacular developments, but it is hoped that the loyal supporters will carry on and make each issue and each volume better than the last. One

Clyde Browne, the builder of Abbey San Encino where might be located an ideal headquarters for the Cactus and Succulent Society of America.

of our plans for the coming year is to reprint the four volumes of Britton and Rose's "The Cactaceae" and the Carnegie Institution of Washington, D.C., is co-operating with us in this work.[1] The publishing of Volume I, chapter by chapter, in our Journal will make the Journal worth many times its small subscription price. And there are other surprises in store for making a better Journal.

The personal ambitions of the Editor have been more than realized and his associations with lovers of cacti has been not without gain, and he hopes that this year may see an even more united, unselfish group of cactus enthusiasts working towards the one goal—the propagation of plants and the dissemination of knowledge.

The dream of the Editor is that this next year may see the Society in headquarters of its own including the Library, Editorial and Executive offices. The Journal should grow to such an extent that it can support an executive who would be at the disposal of the members and who would relieve the over-burdened President, Secretary and Editor of many of their duties. Round table discussions, scientific groups, students and visitors would be welcome. A qualified group should meet to record their conclusions on the many new species which are presented. Perhaps a botanical garden might be assembled to complete the facilities of the students.

With this thought in mind the Editor has *personally* taken a Studio at Abbey San Encino, 6162 Pasadena Avenue, Los Angeles, where he will conduct the Editorial office and enjoy his own meager collection. The atmosphere of this ideal setting lends itself to cacti and the personality of the builder of the Abbey is shown by his own description[2] of his grounds:

—"Soft, gray walls half hid beneath the hill, behind the frosted olive eucalypti, mark the Abbey manse. There it lies, drowsy in the summer trades, stolid in the wintry storms, swept by seasons and years, mossy and lichened from the passing dews, hoar with sepulchral dusts of time, San Encino's olden Abbey hardby the arroyo ford upon the King's Highway.

"Time was when the builder sat upon the hilltop and saw the slope and plain all littered with sage and cacti, with rubble and the waste of passersby, with demon chilicote and ghostly weeds of yesteryear, and in his fancy grew the high-domed tower, cloister and hall, flags of the court, the broad-tiled roofs, and hand-of brazen throats in the massy campanile, and as he forged grills, and o'er it hung the cloying, vibrant lull dreamed his dreams the ways of workers burgeoned and burst into bloom within his fantasy and he wotted again of the crafts.en he had marked in other hands, where dusky folk had trodden adobe beds, moulded and dried ladrillos and burned the tiles of roofs and court, and he knew that he could do what others could.

"The builder dreamed on as the seasons waned, dreamed and labored, biding the time till he could see the stones rise one by one in martial ranks upon the outer walls. He dreamed and planned until he felt that with an age-long decade's passing he could stand within his cloistered manse and say, 'The Task is done.'

"The Abbey holds the lanthorns of old ships; fragments of old world city walls; cathedral glass from smitten Belgic fanes and town halls of the Franks; bricks from England's abbey walls; organ pipes that long dead Teutons voiced; altar rail marble culled from Italy; bricks from villas on the Appian Way; iron from a Spanish palace gate; lead from St. Martin's root at Tours; bits from the tomb of Queen Luitgarde and from the dungeons beneath old London Tower; Roman nails; spawls from Florentine and Roman baths; a sad-voiced temple bell from Cathay; crosses from the Mount of Olives and the hogans of Pimeria; fetish from the cienegas of the Aztec cults and burial jugs from the mounds of the Incas; debris and flotsom from many lands and climes.

* * *

"This then is the tale of that which is in the walls of the olden Abbey of San Encino, but that which is builded in its warp and woof, which is *of the mind and not the hand,* is that which the soul feels more than that which the eye sees: *it is the peace that dwells among the stones and bricks of its halls and cloisters.*

—"Visitors come and go and the days wear on in the printery by the cloister, one belike another; as the printer folk arrange the types for many messages to the great and lesser in the outside world, the droning organ pulses and thrills with pastoral pipes, with reeds of heaven's own voice, with the thunder of storms and lilt of the joys of springtime, with croons of berceuse and fantasies of the traumerie, with paens of life and dirges of death; and the shadows fall, and night soars by on swarthy pinions, silent and chill, and a pale moon mounts and hangs above the tower, silvering the tiles of the roof and filling the court with shadows."

Such might be the grounds of our own Society, where might mingle, plants and men.

[1]Anyone interested in this work should write the Editor at once since a constructive work of this kind needs all assistance available.

[2]'The Abbey Fantasy' by the Builder. An Idyl of San Encino in the making, and of its graying walls.

FROM N. E. BROWN

Kew, England.

Mr. G. A. Frick:

When I last wrote to Mr. West, I told him that I was writing a note on Mesembrianthemums for your *Journal* by nibbles, but unfortunately I have not yet been able to finish it. However, it will arrive some day. The fact is I have too much to do, everybody wants my aid, and I cannot satisfy all. Because, as I am over 80, I want to finish the work I have begun on Mesembrianthemums and I do not want to shirk the details and thereby make it of no value by hurrying over the work, and so other things become delayed.

Yours very truly,

N. E. BROWN.

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SECRETARY'S NOTES

The June meeting of the Society will be held in the lecture Room of the Los Angeles Public Library, 530 South Hope Street, on Saturday evening June 21, at 8 o'clock. An address, illustrated with slides, on "The Lure of the Desert," will be given by Mr. Courtenay Monsen of Pasadena.

Mr. Monsen is an experienced lecturer and a lover of the desert. For a number of years he was associated with his father, the late Dr. Frederick Monsen, eminent traveler and lecturer. Mr. Monsen did much of the photographic work for his father and served the Government as official photographer during the World War. Those who have seen the cactus slides report them to be exceedingly interesting.

The Show Committee will report on the Cactus and Succulent Show at this meeting.

To those who were unable to attend the April meeting at the Palm Springs home of Mrs. Agnes Swodi Meade, may we say that the day was ideal for a desert pilgrimage. The air, delightful and fresh, wild flowers lining the roadside and the flitting cloud shadows o'er hill and valley spoke eloquently of the springtime. Mountain sides in the distance covered with blue lupine gave ample proof of the color which one finds in paintings of California landscapes.

The Society is deeply indebted to those of its members who open their homes for meetings such as this. Mrs. Meade graciously provided every convenience for the comfort of her guests. The garden was in excellent condition. The new growth which the *Carnegia gigantea* had made since last year interested many members.

A center of attraction was the homesite selected by a pair of desert birds in a dense cholla cactus. This was a bona fide home and it was occupied by baby birds. The solicitous mother fluttered nearby while her family was being inspected.

Mother Nature certainly does a splendid piece of work in preparing a suitable environment for her children. The *Echinocereus rigidissimus* showed a greater growth during the year than any plant of the same species that I have ever seen in any collection.

After a brief business session the members drove to the home of Mrs. King C. Gillette who had opened her gardens to the Society. These gardens are most interesting, having much of the appearance of the native desert. They contain not only cacti and other succulents but many native shrubs. The gem of the collection is, perhaps, the huge crested Carnegia which occupies a prominent spot.

Have you renewed your subscription to the Journal? You must do so in order to receive the July number as we are not permitted to mail copies after the expiration of the subscription.

Scarcely a week passes that does not see the Journal added to the library of some university, botanical garden or herbarium. We have just cause to be proud of the growth and standing of our magazine.

The Executive Committee at its April meeting voted favorably upon thirty membership applications received during the month. These came from seven states and Canada.

Our members believe in "saying it with flowers." This is one of the many which are received: "I am just an amateur but enjoy the Journal more than I can tell you. Never saw so much good, understandable reading in one small magazine. It is well worth many times more than the price of the subscription."

BOYD L. SLOANE,
1421 Dominion Avenue, Pasadena, Calif.

Mail subscriptions to Boyd L. Sloane, 1421 Dominion Ave., Pasadena, Calif. Subscription price $3 per year with or without membership; foreign $3.50.

I enclose herewith $ for one year's dues in the Society and one year's subscription to the *Journal of the Cactus and Succulent Society of America.*

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